

# HERO

## Historical Evaluation & Research Organization

Report Number 129

COMBAT HISTORY ANALYSIS STUDY EFFORT (CHASE)

DATA ENHANCEMENT STUDY (CDES)

Vol IV: Task 4 and Task 5

Final Report  
31 January 1986

Prepared for the  
US Army Concepts Analysis Agency  
Bethesda, Maryland

Contract No. MDA903-85-C-0252

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COMBAT HISTORY ANALYSIS STUDY EFFORT (CHASE)

DATA ENHANCEMENT STUDY (CDES)  
Vol. IV: Task 4 and Task 5

Final Report

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#### Task 4: Refinement of the Duration Data

→ The purpose of <sup>4</sup>this task is to provide refined duration values for engagements for which detailed data is available. The original data base gives battle duration in days, but this time increment is considered by CAA to be too coarse for many statistical analyses. All reasonable temporal descriptions were considered in determining an engagement's duration, and, if contradictory evidence was found, the information judged to be most reliable was used. → See p 79

Estimation and interpolation were necessarily required to determine the times of some engagements. Often the only indication given for the start or end time of an engagement is a statement such as "the battle ended at dusk" or "combat drew to a close around midday." A table from the American Nautical Almanac for 1959, reproduced in part on page 820 of Boatner, Civil War, provided information on the times of sunrise and sunset and the beginning of morning and evening nautical twilight at various latitudes and times throughout the calendar year. This table proved quite useful for work done on this task.

For example, information on the duration of the Battle of Kernstown (#177) is found in B&L, II:304-307. The account of the battle in this source reports that the first active period started "at daylight" and ended "before 8:00 AM" and that the second active period began "near 2:00 PM" and ended "as the sun went down." According to the American Nautical Almanac table, at 40 degrees latitude on 15 March the beginning of morning nautical twilight is 0515 hours and sunrise is 0613 hours. Therefore,

taking into consideration these times and the fact that the B&L account describes this part of the battle as being "of short duration," the start time of the first active period is estimated to be 0600 hours. The end time is said to be 0800 hours. Sunset is at 1806 hours at 40 degrees latitude on 15 March according to the American Nautical Almanac table. The end of the second active period is therefore estimated to be 1800 hours. The beginning of the second period is said to be 1400 hours. The total number of active hours for Kernstown is six and the total number of elapsed hours is twelve.

Explanations of the column headings for the Task 4 tables are as follow.

ACTIVE PERIODS are the periods of combat activity, delimited by the start and end times entered under Began and Ended. The start and end times are in the form of a twelve-digit date-time group, composed of year, month, day, and hour. For example, 186203230600, the start time of the first active period at Kernstown, designates 6:00 AM on 23 March 1862. All dates and times are local.

Total Active Hours is the cumulative duration of all active periods, rounded off to the nearest tenth of an hour.

Total Elapsed Hours is the duration from the start time of the first active period to the end time of the final active period of an engagement, rounded off to the nearest tenth of an hour.

An asterisk after an engagement number indicates that there is a footnote for the engagement. Footnotes follow the Task 4 tables.

# ENGAGEMENT DURATIONS

## Nieuport, #1\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
160007 021430	160007 021930					5.0	5.0

## White Mountain, #2\*

162011 081200	162011 081300					1.0	1.0
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## Wimpfen, #3\*

162205 060330	162205 061000	162205 061400	162205 061900			11.5	15.5
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## Breitenfeld I, #6\*

163109 171430	163109 171830					4.0	4.0
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## Alte Veste, #8\*

163209 031000	163209 032000	163209 041000	163209 041100			11.0	25.0
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## Luetzen, #9\*

163211 161100	163211 162000					9.0	9.0
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# ENGAGEMENT DURATIONS

## Noerdlingen I, #10\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
163409 060530	163409 061230					7.0	7.0

## Breitenfeld II, #12\*

164211 020700	164211 021000					3.0	3.0
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## Rocroi, #13\*

164305 190330	164305 191000					6.5	6.5
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## Freiburg, #15\*

164408 031700	164408 032300	164408 050830	164408 051000	164408 051500	164408 051700		
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164408 099999	164408 099999					11.5	?
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## Allerheim (Noerdlingen II), #18\*

164508 031700	164508 032000					3.0	3.0
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# ENGAGEMENT DURATIONS

Lens, #19\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
164808 100500	164808 100530	164808 100830	164808 101100			3.0	6.0

Edgehill, #20\*

164210 231500	164210 231800					3.0	3.0
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Marston Moor, #21\*

164407 021900	164407 02 2200					3.0	3.0
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Newbury II, #24\*

164410 270600	164410 270800	164410 271500	164410 271700			4.0	11.0
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Naseby, #25\*

164506 141000	164506 141300					3.0	3.0
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Dunbar, #27\*

165009 030400	165009 030600					2.0	2.0
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# ENGAGEMENT DURATIONS

## Worcester, #28\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
165109 031430	165109 031800					3.5	3.5

## St. Antoine, #29\*

165207 050800	165207 051400					6.0	6.0
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## The Dunes, #30\*

165806 140800	165806 141200					4.0	4.0
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## The Raab, #31\*

166408 010600	166408 011400					8.0	8.0
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## Vienna, #32\*

168309 120530	168309 121800					12.5	12.5
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## Sinsheim, #34\*

167406 169999	167406 169999					3.0	3.0
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# ENGAGEMENT DURATIONS

Senef, #35\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
167408	167408					14.0	14.0
111000	112400						

Enzheim, #36\*

167410	167410					7.0	7.0
049999	049999						

Fehrbellin, #38\*

167506	167506					2.0	2.0
280800	281000						

Sedgemoor, #39\*

168507	168507					2.0	2.0
060300	060500						

Killiecrankie, #40\*

168907	168907					1.3	1.3
271945	272100						

Walcourt, #41\*

168908	168908					9.5	9.5
250900	251830						

# ENGAGEMENT DURATIONS

## The Boyne, #43\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
169007	169007						
111100	111400					3.0	3.0

## Aughrim, #44\*

169107	169107					6.0	6.0
221400	222000						

## Steenkerke, #45\*

169208	169208					7.0	7.0
031200	031900						

## Neerwinden (Landen), #46\*

169307	169307					11.0	11.0
290400	291500						

## Marsaglia, #47\*

169310	169310					4.5	4.5
049999	049999						

## Zenta, #48\*

169709	169709					4.5	4.5
111500	111930						

# ENGAGEMENT DURATIONS

Blenheim, #50\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
170408	170408						
131230	132100					8.5	8.5

Ramillies, #51\*

170605	170605					6.0	6.0
231300	231900						

Oudenarde, #52\*

170807	170807					6.0	6.0
111500	112100						

Malplaquet, #53 \*

170909	170909					7.0	7.0
110800	111500						

Peterwardein, #54\*

171608	171608					5.0	5.0
050700	051200						

Mollwitz, #55\*

174104	174104					6.8	6.8
101200	101845						

# ENGAGEMENT DURATIONS

Chotusitz, #56\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
174205 170800	174205 171200					4.0	4.0

Fontenoy, #58\*

174505 110500	174505 111300					8.0	8.0
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Hohenfriedberg, #59\*

174506 040400	174506 041100					7.0	7.0
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Sohr, #60\*

174509 300700	174509 301100					4.0	4.0
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Kesselsdorf, #61\*

174512 141400	174512 141700					3.0	3.0
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Prestonpans, #62\*

174509 210430	174509 210440					0.2	0.2
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# ENGAGEMENT DURATIONS

Culloden, #63\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
174604	174604						
161310	161350					0.7	0.7

Lobositz, #64\*

175610	175610					4.0	4.0
011100	011500						

Prague, #65\*

175705	175705					4.0	4.0
061100	061500						

Plassey, #66\*

175706	175706					9.0	9.0
230800	231700						

Kolin, #67\*

175706	175706					7.0	7.0
181400	182100						

Hastenbeck, #68\*

175707	175707					7.0	7.0
260900	261600						

# ENGAGEMENT DURATIONS

Rossbach, #69\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
175711	175711						
051530	051700					1.5	1.5

Leuthen, #70\*

175712	175712						
051300	051600					3.0	3.0

Crefeld, #71\*

175806	175806						
231300	231800					5.0	5.0

Zorndorf, #72\*

175808	175808						
251000	251930					9.5	9.5

Hochkirch, #73\*

175810	175810						
140500	140800					3.0	3.0

Minden, #75\*

175908	175908						
010600	011100					5.0	5.0

# ENGAGEMENT DURATIONS

Kunersdorf, #76\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
175908 121130	175908 121730					6.0	6.0

Plains of Abraham (Quebec), #77\*

175909 131000	175909 131015					0.3	0.3
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Maxen, #78\*

175911 201100	175911 201730					6.5	6.5
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Liegnitz, #80\*

176008 150500	176008 150700					2.0	2.0
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Torgau, #81\*

176011 031400	176011 032200					8.0	8.0
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Bunker Hill, #82\*

177506 171500	177506 171900					4.0	4.0
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# ENGAGEMENT DURATIONS

Quebec, #83\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
177601 010400	177601 010900					5.0	5.0

White Plains, #84\*

177610 280800	177610 281700					9.0	9.0
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Trenton, #85\*

177612 260800	177612 260930					1.5	1.5
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Princeton, #86\*

177701 030800	177701 030815					0.3	0.3
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Freeman's Farm, #87\*

177709 191245	177709 191915					6.5	6.5
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Germantown, #88\*

177710 040600	177710 041000					4.0	4.0
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# ENGAGEMENT DURATIONS

## Bemis Heights, #89\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
177710 071430	177710 071522					0.9	0.9

## Monmouth Court House, #90\*

177806 281000	177806 281700					7.0	7.0
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## Camden, #91\*

178008 160200	178008 160220	178008 160430	178008 161300			8.8	11.0
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## Cowpens, #92\*

178101 170700	178101 170800					1.0	1.0
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## Guilford Court House, #93\*

178103 151330	178103 151530					2.0	2.0
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## Hobkirk's Hill, #94\*

178104 251000	178104 251600					6.0	6.0
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# ENGAGEMENT DURATIONS

Eutaw Springs, #95\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
178109 080905	178109 081300					4.0	4.0

Valmy, #96\*

179209 201210	179209 201700					4.8	4.8
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Fleurus, #101\*

179406 260400	179406 261000					6.0	6.0
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Lodi, #102\*

179605 101830	179605 102000					1.5	1.5
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Wuerzburg, #105\*

179609 030900	179609 031920					10.3	10.3
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Pyramids, #108\*

179807 211530	179807 211630					1.0	1.0
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# ENGAGEMENT DURATIONS

Stockach I, #109\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
179903 250500	179903 252000					15.0	15.0

Mount Tabor, #110\*

179904 160630	179904 161630					10.0	10.0
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Novi, #112\*

179908 150300	179908 151300	179908 151600	179908 152000			14.0	17.0
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Marengo, #115\*

180006 140900	180006 141200	180006 141300	180006 142100			11.0	12.0
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Hohenlinden, #116\*

180012 030800	180012 031730					9.5	9.5
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Austerlitz, #117\*

180512 020800	180512 021700					9.0	9.0
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# ENGAGEMENT DURATIONS

Jena, #118\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
180610 140600	180610 141515					9.3	9.3

Auerstadt, #119\*

180610 140800	180610 141600					8.0	8.0
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Eylau, #120\*

180702 080800	180702 082200					14.0	14.0
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Friedland, #121\*

180706 141730	180706 142300					5.5	5.5
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Vimeiro, #122\*

180808 211000	180808 211930					9.5	9.5
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Corunna, #123\*

180901 161400	180901 161800					4.0	4.0
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# ENGAGEMENT DURATIONS

Eckmuhl, #124 \*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
180904 221330	180904 221930					6.0	6.0

Aspern-Essling, #125 \*

180905 211300	180905 212030	180905 220500	180905 220800	180905 221000	180905 221500	15.5	26.0
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The Raab, #126 \*

180906 141400	180906 141700					3.0	3.0
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Wagram, #127\*

180907 051900	180907 052030	180907 060400	180907 061400			11.5	19.0
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Talavera, #128\*

180907 280500	180907 280540	180907 281330	180907 281800			5.2	13.0
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Bussaco, #129\*

181009 270545	181009 271400					8.3	8.3
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# ENGAGEMENT DURATIONS

Fuentes de Onoro, #130\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
181105 050700	181105 051400					7.0	7.0

Albuera, #131\*

181105 160900	181105 161450					5.8	5.8
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Salamanca, #132\*

181207 221700	181207 222045					3.8	3.8
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Vittoria, #133\*

181306 210830	181306 211930					11.0	11.0
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Borodino, #134\*

181209 070600	181209 071800					12.0	12.0
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Luetzen, #135\*

181305 021145	181305 022100					9.3	9.3
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# ENGAGEMENT DURATIONS

Bautzen, #136\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
181305 201500	181305 202000	181305 210500	181305 211700			17.0	26.0

Dresden, #137\*

181308 260500	181308 261100	181308 261400	181308 262000	181308 270600	181308 271600	22.0	35.0
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Leipzig, #138\*

181310 160830	181310 161830	181310 180900	181310 181830	181310 191000	181310 191400	23.5	77.5
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Hanau, #139\*

181310 300900	181310 301730	181310 310700	181310 311100			12.5	26.0
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La Rothiere, #140\*

181402 011300	181402 012000					7.0	7.0
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Laon, #141\*

181403 090600	181403 091700	181403 091900	181403 092200	181403 100600	181403 101700	25.0	35.0
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# ENGAGEMENT DURATIONS

Arcis-sur-Aube, #142\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
181403 201400	181403 201930	181403 211500	181403 211800			8.5	28.0

Ligny, #143\*

181506 161400	181506 162130					7.5	7.5
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Quatre Bras, #144\*

181506 161430	181506 162130					7.0	7.0
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Waterloo, #145\*

181506 181130	181506 182130					10.0	10.0
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The Thames, #146\*

181310 051400	181310 051410					0.2	0.2
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Chippewa, #147\*

181407 051700	181407 051800					1.0	1.0
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# ENGAGEMENT DURATIONS

## Lundy's Lane, #148\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
181407 251800	181407 252400					6.0	6.0

## New Orleans, #149\*

181501 080600	181501 080645					0.8	0.8
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## Pichincha, #153\*

182205 240900	182205 241200					3.0	3.0
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## Ayacucho, #155\*

182412 090900	182412 091900					10.0	10.0
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## San Jacinto, #156\*

183604 211630	183604 211648					0.3	0.3
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## Palo Alto, #157\*

184605 081430	184605 081930					5.0	5.0
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# ENGAGEMENT DURATIONS

Resaca de la Palma, #158\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
184605 091600	184605 091730					1.5	1.5

Buena Vista, #159\*

184702 221500	184702 221845	184702 230600	184702 231845			16.6	27.8
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Cerro Gordo, #160\*

184704 171200	184704 171900	184704 180700	184704 181200			12.0	24.0
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Contreras, #161\*

184708 200545	184708 200602					0.3	0.3
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Churubusco, #162\*

184708 200800	184708 200830	184708 201230	184708 201530			3.5	7.5
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Molino del Rey, #163\*

184709 080500	184709 080700					2.0	2.0
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# ENGAGEMENT DURATIONS

Chapultepec, #164\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
184709	184709					13.0	13.0
130550	131850						

The Alma, #165\*

185409	185409					3.0	3.0
201430	201730						

Inkerman, #166\*

185411	185411					7.3	7.3
050545	051300						

Magenta, #167\*

185906	185906					9.0	9.0
041030	041930						

Solferino, #168\*

185906	185906					11.5	11.5
240700	241830						

Sadowa (Koeniggraetz), #169\*

186607	186607					8.0	8.0
030900	031700						

Custoza II, #170

186606	186606					9.0	9.0
240800	241700						

# ENGAGEMENT DURATIONS

## First Bull Run (First Manassas), #171\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
186107 210900	186107 211600					7.0	7.0

## Wilson's Creek, #172\*

186108 100530	186108 101130					6.0	6.0
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## Belmont, #173\*

186111 071030	186111 071650					6.3	6.3
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## Mill Springs, #174\*

186201 190530	186201 191600					10.5	10.5
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## Fort Donelson, #175\*

186202 150550	186202 151530					9.7	9.7
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## Pea Ridge, #176\*

186203 071030	186203 071830	186203 080630	186203 081130			13.0	25.0
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# ENGAGEMENT DURATIONS

Kernstown, #177\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
186203 230600	186203 230800	186203 231400	186203 231800			6.0	12.0

Shiloh, #178\*

186204 060500	186204 061800	186204 070730	186204 071600			21.5	35.0
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Front Royal, #179\*

186205 231400	186205 231730					3.5	3.5
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First Winchester, #180\*

186205 250600	186205 250730					1.5	1.5
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Cross Keys, #181\*

186206 080900	186206 081200					3.0	3.0
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Port Republic, #182\*

186206 090700	186206 091100					4.0	4.0
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# ENGAGEMENT DURATIONS

## Seven Pines (Fair Oaks), #183\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
186205 311300	186205 311930	186206 010630	186206 011330			13.5	24.5

## Mechanicsville, #184\*

186206 261500	186206 262100					6.0	6.0
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## Gaines's Mill, #185\*

186206 271230	186206 271800	186206 271830	186206 272100			8.0	8.5
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## Glendale-Frayser's Farm, #186\*

186206 290900	186206 291100	186206 291700	186206 292030	186206 301630	186206 302100	10.0	36.0
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## Malvern Hill, #187\*

186207 011500	186207 011600	186207 011800	186207 012030			3.5	5.5
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## Cedar Mountain, #188\*

186208 091500	186208 092130					6.5	6.5
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# ENGAGEMENT DURATIONS

Second Bull Run (Second Manassas), #189\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
186208 290530	186208 291200	186208 291330	186208 292130	186208 301200	186208 302000	22.5	38.5

South Mountain, #190\*

186209 140900	186209 142200					13.0	13.0
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Antietam (Sharpsburg), #191

186209 170530	186209 171630					11.0	11.0
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Corinth, #192\*

186210 031000	186210 031330	186210 031500	186210 031800	186210 040900	186210 041300	10.5	27.0
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Perryville, #193\*

186210 081400	186210 081800					4.0	4.0
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Fredericksburg, #194\*

186212 131100	186212 131600					5.0	5.0
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# ENGAGEMENT DURATIONS

Murfreesboro (Stones River), #195\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
186212 310700	186212 311200	186212 311400	186212 311800	186201 021600	186201 022200	15.0	63.0

Chancellorsville, #196\*

186305 021715	186305 022100	186305 030500	186305 031600	186305 041800	186305 042030	17.3	51.3
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Champion's Hill, #197\*

186305 161030	186305 161600					5.5	5.5
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Brandy Station, #198\*

186306 090400	186306 091600					12.0	12.0
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Gettysburg, #199\*

186307 011000	186307 011700	186307 021600	186307 022030	186307 030500	186307 031030		
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186307 031300	186307 031500					19.0	53.0
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# ENGAGEMENT DURATIONS

## Chickamauga, #200\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
186309 190530	186309 191830	186309 200900	186309 201900			23.0	37.5

## Chattanooga, #201\*

186311 241000	186311 241200	186311 250700	186311 251800			13.0	32.0
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## The Wilderness, #202\*

186405 050715	186405 052000	186405 060500	186405 062000			27.8	36.8
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## New Market, #204\*

186405 150500	186405 151600					11.0	11.0
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## Cold Harbor, #205\*

186406 030430	186406 031330					9.0	9.0
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## Kenesaw Mountain, #206\*

186406 270900	186406 271130					2.5	2.5
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# ENGAGEMENT DURATIONS

Peachtree Creek, #207\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
186407 201500	186407 201800					3.0	3.0

Atlanta, #208\*

186407 221230	186407 221930					7.0	7.0
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Petersburg, #209\*

186406 151900	186406 152300	186406 161800	186406 172300	186406 180430	186406 180630		
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186406 181230	186406 181430	186406 181600	186406 182030			41.5	73.5
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Opequon Creek (Third Winchester), #211\*

186409 190500	186409 191700					12.0	12.0
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Cedar Creek, #212\*

186410 190530	186410 191000	186410 191200	186410 191400	186410 191600	186410 191800	8.5	12.5
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# ENGAGEMENT DURATIONS

Franklin, #213\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
186411 301530	186411 302300					7.5	7.5

Nashville, #214\*

186412 150800	186412 151745	186412 161500	186412 161645			11.6	32.8
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Bentonville, #215\*

186503 190600	186503 191900	186503 210600	186503 210800			15.0	50.0
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Five Forks, #217\*

186504 011600	186504 011930					3.5	3.5
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Sayler's Creek, #219\*

186504 060830	186504 061930					11.0	11.0
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Weissenburg, #220\*

187008 040830	187008 041500					6.5	6.5
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# ENGAGEMENT DURATIONS

Froeschwiller (Woerth), #221\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
187008 060800	187008 061700					9.0	9.0

Spichern, #222\*

187008 060500	187008 061800					13.0	13.0
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Mars la Tour, #223\*

187008 161000	187008 162200					12.0	12.0
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Gravelotte-St. Privat, #224\*

187008 181130	187008 182000					8.5	8.5
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Sedan, #225\*

187009 010400	187009 011700					13.0	13.0
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Coulmiers, #226\*

187011 090900	187011 091600					7.0	7.0
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# ENGAGEMENT DURATIONS

Le Mans, #228\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
187101 110900	187101 111700	187101 120800	187101 121700			17.0	32.0

Isandhlwana, #230\*

187901 221200	187901 221600					4.0	4.0
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Ulundi, #231\*

187907 040800	187907 040900					1.0	1.0
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Majuba Hill, #232\*

188102 271230	188102 271330					1.0	1.0
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Tel el-Kebir, #233\*

188209 130455	188209 130700					2.1	2.1
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Omdurman, #234\*

189809 020630	189809 021130					5.0	5.0
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# ENGAGEMENT DURATIONS

Modder River, #236\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
189911 280530	189911 281530					10.0	10.0

Magersfontein, #237\*

189912 110500	189912 111400					9.0	9.0
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Colenso, #238\*

189912 150630	189912 151700					10.5	10.5
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Spion Kop, #239\*

190001 240800	190001 241900					11.0	11.0
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Paardeberg, #240\*

190002 180800	190002 181200	190002 181400	190002 181530	190002 181715	190002 181900	7.3	11.0
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San Juan and El Caney, #241\*

189807 010630	189807 011700					10.5	10.5
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# ENGAGEMENT DURATIONS

The Yalu, #242\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
190404 300400	190404 302000	190405 010500	190405 011300			24.0	33.0

Telissu, #243\*

190406 141200	190406 141900	190406 150520	190406 151500			16.7	27.0
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Sandepu, #246\*

190501 261030	190501 261815	190501 270500	190501 272130			24.3	35.0
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Kumanovo, #248\*

191210 230530	191210 232130	191210 240530	191210 241230			23.0	31.0
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Changkufeng/Shachao Feng, #256\*

193807 310200	193807 310800					6.0	6.0
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Hill 52/Shachao Feng, #257\*

193808 020800	193808 021600	193808 022000	193808 022200	193808 030100	193808 030230		
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# ENGAGEMENT DURATIONS

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
193808 030500	193808 030630					13.0	22.5

Mons, #266\*

191408 230900	191408 232300					14.0	14.0
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Le Cateau, #267\*

191408 260600	191408 261800					12.0	12.0
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Guise, #268\*

191408 290900	191408 292300					14.0	14.0
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Neuve Chapelle, #290\*

191503 100830	191503 101300	191503 101730	191503 101900	191503 110700	191503 111200		
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191503 120500	191503 120700	191503 121230	191503 121640	191503 130930	191503 131030	18.2	74.0
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# ENGAGEMENT DURATIONS

## First Dardanelles Landing, #300\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
191504 250430	191504 251900	191504 252000	191504 252200			16.5	17.5

## Somme, Fourth Army Attack, #305\*

191607 010730	191607 012030					13.0	13.0
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## Somme, Ovillers, #306\*

191607 010730	191607 011930					12.0	12.0
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## Somme, Bazentin Ridge, #307\*

191607 140330	191607 142000					16.5	16.5
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## Somme, Flers-Courcelette, #308\*

191609 150620	191609 152125					15.1	15.1
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## Crossing of the Tigris, #325\*

191702 221000	191702 221930	191702 230530	191702 231900	191702 240615	191702 241900	35.8	57.0
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# ENGAGEMENT DURATIONS

## Gaza I, #326\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
191703 261145	191703 261830	191703 270530	191703 270930	191703 271900	191703 272000	11.8	32.3

## Gaza II, #327\*

191704 170415	191704 170700	191704 190630	191704 191700			13.3	60.8
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## Yvonne and Odette Positions, #333\*

191804 140030	191804 140230					2.0	2.0
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## Cantigny, #335\*

191805 280645	191805 280720	191805 280730	191805 280800	191805 280930	191805 281000		
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191805 281710	191805 281740	191805 281830	191805 281900			2.6	12.3
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## Belleau Wood, #336\*

191806 060345	191806 061230	191806 061700	191806 062100			12.8	17.3
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# ENGAGEMENT DURATIONS

Hill 142, #337\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
191806 060345	191806 061230					8.8	8.8

West Wood I, #338\*

191806 061700	191806 062100					4.0	4.0
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Bouresches I, #339\*

191806 061700	191806 062130					4.5	4.5
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Hill 192, #340\*

191806 061700	191806 070300					10.0	10.0
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West Wood II, #341\*

191806 110430	191806 110900					4.5	4.5
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North Wood I, The Hunting Lodge, #342\*

191806 121730	191806 122030					3.0	3.0
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## ENGAGEMENT DURATIONS

### Bouresches II, #343\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
191806 130300	191806 130530					2.5	2.5

### North Wood II, #344\*

191806 210315	191806 210430					1.3	1.3
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### North Wood III, #345\*

191806 231900	191806 232320					4.3	4.3
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### North Wood IV (Final Assault), #346\*

191806 251700	191806 260600					13.0	13.0
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### Vaux, #347\*

191807 011700	191807 020230					9.5	9.5
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### La Roche Wood East, #348\*

191807 011800	191807 020230					8.5	8.5
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# ENGAGEMENT DURATIONS

La Roche Wood West, #349\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
191807 011700	191807 020300					10.0	10.0

Missy aux Bois Ravine, #353\*

191807 180435	191807 181600					11.4	11.4
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Breuil, #354\*

191807 180435	191807 181600					11.4	11.4
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St. Amand Farm, #355\*

191807 180435	191807 180930					4.9	4.9
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Beaurepaire Farm, #356\*

191807 180435	191807 180930					4.9	4.9
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Cravancon Ferme-Chaudun, #357\*

191807 180435	191807 181100					6.4	6.4
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# ENGAGEMENT DURATIONS

Chaudun, #358\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
191807 180435	191807 180800					3.4	3.4

Berzy le Sec, #360\*

191807 210830	191807 210915					0.8	0.8
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Lahayville-Bois de Lamarche, #365\*

191809 120500	191809 121730					12.5	12.5
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Medeah Farm, #368\*

191810 030550	191810 030840					2.8	2.8
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Blanc Mont Ridge, #370\*

191810 030550	191810 030930					3.7	3.7
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Sommepey Wood, #371\*

191810 030550	191810 030930					3.7	3.7
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# ENGAGEMENT DURATIONS

Exermont-Montrefagne, #374\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
191810 040530	191810 040700	191810 041730	191810 041830			2.5	13.0

Mayache Ravine, #375\*

191810 040530	191810 041730					12.0	12.0
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Ferme des Granges-Fleville, #377\*

191810 040530	191810 040700					1.5	1.5
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Hill 212, #378\*

191810 050630	191810 051730					11.0	11.0
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Hill 272, #380\*

191810 090830	191810 091100					2.5	2.5
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Remilly-Aillicourt, #382\*

191811 070200	191811 070600					4.0	4.0
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# ENGAGEMENT DURATIONS

Hill 252-Pont Maugis, #383\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
191811 070730	191811 071100					3.5	3.5

Alam Halfa, #386\*

194208 310130	194208 310830	194208 311300	194208 311600	194208 311745	194208 311930		
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194209 010400	194209 010830	194209 011200	194209 011700	194209 020500	194209 021900	35.3	65.5
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Chouigui Pass, #391\*

194211 260530	194211 260600					0.5	0.5
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El Guettar, #392\*

194303 230500	194303 230800	194303 231645	194303 231900			5.3	14.0
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Sele-Calore Corridor, #396\*

194309 111000	194309 112400					14.0	14.0
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# ENGAGEMENT DURATIONS

Tobacco Factory, #399\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
194309 131310	194309 131830	194309 140800	194309 140930	194309 141030	194309 141430	10.8	25.3

Caiazzo, #404\*

194310 130200	194310 130730	194310 131400	194310 132100	194310 140615	194310 141730	23.8	39.5
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Triflisco, #408\*

194310 130200	194310 131830	194310 141645	194310 142400			23.8	46.0
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Calabritto, #420\*

194312 011700	194312 020600	194312 020630	194312 021700			23.5	24.0
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Monte Maggiore, #422\*

194312 021630	194312 031700					24.5	24.5
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Campoleone, #425\*

194401 292300	194401 300700	194401 301510	194401 301830	194401 311030	194401 311800	18.8	43.0
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# ENGAGEMENT DURATIONS

## Campoleone Counterattack, #426\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
194402 031500	194402 031830	194402 032300	194402 041700	194402 042100	194402 050500	29.5	38.0

## Carroceto, #427\*

194402 072200	194402 081800					20.0	20.0
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## Aprilia II, #429\*

194402 082400	194402 091300					13.0	13.0
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## Factory Counterattack, #430\*

194402 110630	194402 111630	194402 120200	194402 120630			14.5	24.0
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## Bowling Alley, #431\*

194402 160600	194402 161830	194402 162400	194402 170900	194402 171200	194402 171730		
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194402 180400	194402 182130	194402 190630	194402 190820	194402 191330	194402 191620	49.1	82.3
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# ENGAGEMENT DURATIONS

Santa Maria Infante, #434\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
194405 112300	194405 121200	194405 131630	194405 140400			24.5	53.0

San Martino, #435\*

194405 112300	194405 122000	194405 131630	194405 132000			24.5	45.0
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Castellonorato, #436\*

194405 141500	194405 142100	194405 150900	194405 152400			21.0	33.0
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Spigno, #437\*

194405 140400	194405 141200	194405 150600	194405 150900			11.0	29.0
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Terracina, #441\*

194405 221400	194405 222000	194405 222100	194405 222400	194405 230900	194405 232400	24.0	34.0
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Moletta Offensive, #442\*

194405 230600	194405 231130	194405 232110	194405 241100			19.3	29.0
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# ENGAGEMENT DURATIONS

## Anzio Breakout, #444\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
194405 230630	194405 232000	194405 240530	194405 241900	194405 250600	194405 251930	40.5	61.0

## Cisterna, #445\*

194405 230630	194405 231900	194405 240800	194405 242000	194405 250400	194405 251930	40.0	61.0
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## Velletri, #447\*

194405 261300	194405 261930					6.5	6.5
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## Lariano, #453\*

194406 010500	194406 011930	194406 020430	194406 021630			26.5	35.5
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## Via Anziate, #454\*

194406 010530	194406 011900	194406 020600	194406 022240			30.2	41.2
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## Valmontone, #455\*

194406 010500	194406 012100	194406 020600	194406 022100			31.0	40.0
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# ENGAGEMENT DURATIONS

Operation "Goodwood," #459\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
194407 180745	194407 181900	194407 191300	194407 192100	194407 200530	194407 201600	29.8	56.3

Arracourt, #467\*

194409 190730	194409 191400	194409 201100	194409 201900	194409 220945	194409 221640	21.4	81.2
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Westwall, #468\*

194410 021100	194410 021830	194410 030600	194410 031645	194410 040500	194410 041830		
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194410 050600	194410 051830	194410 060710	194410 061830	194410 070900	194410 071830	65.1	127.5
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Bourgaltroff, #474\*

194411 140845	194411 141730	194411 150300	194411 151200			17.8	27.3
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Baerendorf II, #477\*

194411 261045	194411 261730					6.8	6.8
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# ENGAGEMENT DURATIONS

Singling-Bining, #482\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
194412 060830	194412 062000					11.5	11.5

Jitra, #487\*

194112 120300	194112 120500	194112 120900	194112 122200			15.0	19.0
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The Pogoreloye Gorodishche Offensive, #491\*

194208 040745	194208 041800	194208 050530	194208 052100	194208 060900	194208 062200		
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194208 070510	194208 072100	194208 080530	194208 082000	194208 090430	194208 092000		
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194208 100500	194208 102100	194208 110415	194208 112100			117.4	181.3
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Brody, Phase I, #506\*

194407 140515	194407 142200					16.8	16.8
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# ENGAGEMENT DURATIONS

Brody, Phase II, #507\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
194407 150400	194407 152200					18.0	18.0

Tarawa-Betio, #517\*

194311 200910	194311 201900	194311 210600	194311 211900	194311 220800	194311 230400		
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194311 230800	194311 231330					48.3	76.3
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Jenin, #549\*

196706 051500	196706 052400	196706 060300	196706 060600			12.0	15.0
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Jerusalem, #550\*

196706 051600	196706 052300	196706 060220	196706 061400	196706 061800	196706 062400		
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196706 070700	196706 071015					28.0	42.3
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# ENGAGEMENT DURATIONS

Kabatiya, #551\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
196706 060600	196706 062000	196706 070500	196706 070700			16.0	25.0

Tilfit-Zababida, #552\*

196706 061015	196706 062000	196706 070100	196706 070300			11.8	16.8
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Nablus, #553\*

196706 071230	196706 071830					6.0	6.0
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Rafah, #554\*

196706 050815	196706 051500	196706 052030	196706 052330			9.8	15.3
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Bir Lahfan, #555\*

196706 052100	196706 061030					13.5	13.5
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Abu Ageila-Um Katef, #556\*

196706 052000	196706 060500					9.0	9.0
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# ENGAGEMENT DURATIONS

El Arish, #557\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
196706 052000	196706 060700					11.0	11.0

Jebel Libni, #558\*

196706 061900	196706 062230					3.5	3.5
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Gaza Strip, #559\*

196706 050815	196706 052030	196706 060500	196706 062030	196706 070500	196706 070600	28.8	45.8
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Bir Hassna-Bir Thamada, #560\*

196706 070515	196706 071100	196706 071700	196706 072000			8.8	14.8
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Mitla Pass, #561\*

196706 071800	196706 080430					10.5	10.5
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Bir Hanna-Bir Gifgafa, #562\*

196706 071700	196706 072000					3.0	3.0
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# ENGAGEMENT DURATIONS

Nakhl, #563\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
196706 081000	196706 081430					4.5	4.5

Bir Gifgafa, #564\*

196706 080030	196706 080330					3.0	3.0
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Tel Fahar-Banias, #565\*

196706 091130	196706 092400					12.5	12.5
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Rawiyeh, #566\*

196706 092000	196706 092400					4.0	4.0
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Zacura-Kala, #567\*

196706 091130	196706 092000					8.5	8.5
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Kerama, #568\*

196803 210530	196803 212100					15.5	15.5
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## ENGAGEMENT DURATIONS

### Suez Canal Assault-North, #569\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
197310 061405	197310 070015					10.2	10.2

### Suez Canal Assault-South, #570\*

197310 061405	197310 070015					10.2	10.2
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### Second Army Buildup, #571\*

197310 070030	197310 072300					22.5	22.5
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### Third Army Buildup, #572\*

197310 070030	197310 072300					22.5	22.5
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### Kantara-Firdan, #573\*

197310 080800	197310 081900					11.0	11.0
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### Egyptian Offensive-North, #574\*

197310 140630	197310 141500					8.5	8.5
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# ENGAGEMENT DURATIONS

## Egyptian Offensive-South, #575\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
197310 140630	197310 141500					8.5	8.5

## Deversoir (Chinese Farm I), #576\*

197310 151700	197310 161200					19.0	19.0
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## Deversoir (Chinese Farm II), #577\*

197310 161200	197310 161330	197310 161400	197310 161600	197310 170230	197310 171700	18.0	29.0
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## Deversoir West, #578\*

197310 180545	197310 181900					13.3	13.3
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## Ismailia, #579\*

197310 190600	197310 191830	197310 200600	197310 201830	197310 210600	197310 211830		
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197310 220600	197310 221830					50.0	84.5
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# ENGAGEMENT DURATIONS

## Jebel Geneifa, #580\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
197310 190630	197310 191830	197310 200730	197310 201830	197310 210600	197310 211700	34.0	58.5

## Shallufa I, #581\*

197310 220500	197310 221850					13.8	13.8
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## Shallufa II, #583\*

197310 230630	197310 231930	197310 240520	197310 241930			27.2	37.0
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## Suez, #584\*

197310 231500	197310 231930	197310 240520	197310 250230			25.7	35.5
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## Ahmadiyah, #586\*

197310 061405	197310 070500	197310 070800	197310 071300	197310 072200	197310 080100	22.9	34.9
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## Rafid, #587\*

197310 061405	197310 071400					23.9	23.9
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## ENGAGEMENT DURATIONS

### Nafekh, #589\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
197310 071315	197310 071830	197310 080600	197310 081800			17.3	28.8

### Hushniyah, #591\*

197310 080600	197310 081830	197310 090600	197310 091830	197310 100600	197310 101200	31.0	54.0
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### Tel Shams, #594\*

197310 111100	197310 111600	197310 121100	197310 121700	197310 131630	197310 132100	15.5	58.0
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### Tel el Hara, #596\*

197310 130300	197310 130330					0.5	0.5
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### Kfar Shams-Tel Antar, #597\*

197310 151600	197310 151900					3.0	3.0
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### Naba, #598\*

197310 160500	197310 160900	197310 161000	197310 161030			4.5	5.5
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# ENGAGEMENT DURATIONS

Arab Counteroffensive, #599\*

ACTIVE PERIODS						Total Active Hours	Total Elapsed Hours
Began	Ended	Began	Ended	Began	Ended		
197310 190600	197310 191700					11.0	11.0

Mount Hermon II, #600\*

197310 211400	197310 211600					2.0	2.0
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#### Task 4 Footnotes

Nieuport, #1: According to Fortescue, I:162, the battle was begun at 1430 hours, when the Spanish attacked. The end time is based on the account in Oman, Sixteenth Century, pp. 594-598.

White Mountain, #2: Gindely, one of the most authoritative of Thirty Years' War historians, asserts that the battle began about noon and lasted "scarcely one hour." See Gindely, I:248, 250.

Wimpfen, #3: The data is based upon the discussion in Gindely, I:338-339. There was apparently a heavy cannonade, beginning at approximately 0330 hours and ceasing sometime in the forenoon. Then there was a pause, due to the great heat, until 1400 hours, when the cannonade was resumed and the allies advanced to the assault. Gindely gives the duration of the "murderous battle" which followed as five hours.

Breitenfeld I, #6: Dupuy, Gustavus Adolphus, p. 99, gives the start time. The end time has been estimated from Malleon, Battlefields, p. 36, and Dupuy, Gustavus Adolphus, p. 120.

Alte Veste, #8: The data is based upon Dupuy, Gustavus Adolphus, pp. 133-134, and Malleon, Battlefields, p. 75.

Luetzen, #9: The data is from Malleon, Battlefields, p. 97, and Dupuy, Gustavus Adolphus, pp. 143, 147.

Noerdlingen I, #10: The data is based on the narrative in Wedgwood, pp. 364, 366.

Breitenfeld II, #12: The data has been extracted from the excellent study of the campaign by Boettger. See Boettger, pp. 48, 51.

Rocroi, #13: Data from Aumale, III:129, 133.

Freiburg, #15: The times are based on the accounts in Aumale, III:323-345, 604, and Malleon, Battlefields, 175-185. The times of the engagement on 9 August are not known; it is estimated to have lasted about two hours.

Allerheim (Noerdlingen II), #18: Lahrkamp, p. 157, states that the engagement began between 1600 and 1700. This would appear to be too early. Ramsay, I:110, gives 1700 as the start time, and this is undoubtedly based on the observations of Turenne (Ramsay, II:29). Turenne's comments make it clear that the engagement ended at dusk (Ramsay, II:32).

Lens, #19: The data follows the chronology in Aumale, V:258. It has been necessary to estimate the duration of the early clash between the Spanish left wing and the French right and right center, but this was brief. The main engagement took place during 0830-1100 hours.

Edgehill, #20: According to Seymour, II:48-49, the battle began at 1500 hours and ended at dark, having lasted three hours.

Marston Moor, #21: Seymour, II:96, states that the battle began at 1900 hours, when there were three hours of daylight left, and that it ended at 2200 hours, approximately (ibid., p.99).

Newbury II, #24: Manchester's attack, which opened the battle, was made in the "early morning" (Burne, p. 234) and probably continued for about two hours before it was broken off. There ensued a desultory cannonade for the greater part of the day until Waller attacked Maurice at 1500 hours (Burne, p. 234; Smurthwaite, p. 165). The onset of darkness put an end to the fighting at approximately 1700 hours (Burne, p. 237).

Naseby, #25: According to Young and Adair, the battle began "about 10 o'clock" and lasted three hours (see pp. 210, 215).

Dunbar, #27: Based on information in Seymour, II:145.

Worcester, #28: Young and Adair, p. 237, indicate that the fighting began on the Royalist right "between 2 and 3 o'clock in the afternoon." We have opted for 1430 hours. The last significant fighting took place "about 6 o'clock" (see Young and Adair, p. 240).

St. Antoine, #29: The data is from Aumale, VI:190, 199.

The Dunes, #30: Ramsay, I:313, is the authority for placing the beginning of the battle at 0800. Col. Bourelly, p. 211, concurs and states that the battle lasted four hours.

The Raab, #31: The data is from Peball, pp. 13, 18.

Vienna, #32: The data is based on Malleon's account in Battlefields, pp. 286-288.

Sinsheim, #34: Aumale, VII:578, states that the engagement lasted three hours. It was not possible to determine the start and end times.

Senef, #35: Start and end times and duration are based upon the account in Aumale, VII:492, 499, et seq.

Enzheim, #36: Aumale, VII:584, states that the battle lasted seven hours. It was not possible to determine the exact start and end times.

Fehrbellin, #38: The data is based on the account in Malleon, Battlefields, pp. 253-255.

Sedgemoor, #39: The times and the duration are estimated from evidence in Chandler, Marlborough, pp. 19-20.

Killiecrankie, #40: Data estimated based on Smurthwaite, p. 194. It is evident that the combat and the pursuit must have ended in a relatively brief period of time, probably coterminous with evening twilight.

Walcourt, #41: The data is based upon the account in Chandler, Marlborough, pp. 31-32.

The Boyne, #43: There was skirmishing at Rosnaree from 0800 until 0930 (Ellis, pp. 78-80), but the main attack at Oldbridge did not begin until approximately 1100 (Ellis, p. 88) or, possibly, later (Boulger, p. 160). The fighting had ended by about 1400 hours (Ellis, p. 110).

Aughrim, #44: Various times are given in contemporary accounts. Discounting the skirmishing, which began at 1100 (Boulger, p. 235), it would appear the battle lasted from 1400 to about 2000 hours (see Boulger, pp. 235, 241).

Steenkerke, #45: The data is given in O'Callaghan, p. 167. Fortescue, I:364, states that the engagement began at 1100; on p. 368 he states that it ended at dark.

Neerwinden (Landen), #46: The times and duration are given by O'Callaghan, p. 171. Fortescue, I:374, states only that the engagement began at sunrise.

Marsaglia, #47: The figure given for the duration of this engagement is based upon O'Callaghan's statement, p. 177, that the fighting lasted four or five hours. It was not possible to determine the start or end times.

Zenta, #48: The data is estimated, based on the account in Dodge, Gustavus Adolphus, pp. 673-674.

Blenheim, #50: The data was developed from Chandler, Marlborough. There was a desultory cannonade from 1000-1230 hours, during which time the opposing armies completed their deployment for battle. At 1230 the Allied deployment was completed, and the Allied left attacked immediately (p. 145). The battle ended at 2100 hours (p. 148).

Ramillies, #51: The data is from Chandler, Marlborough. The battle was opened at 1300 hours (p. 175). The French army began to disintegrate at approximately 1830 (pp. 177-178) and within a short time was in full rout. Thus, the combat appears to have ended at 1900 hours approximately.

Oudenarde, #52: The times are those given in Chandler, Marlborough, pp. 218, 221.

Malplaquet, #53: Chandler, Marlborough, p. 258, gives the exact times.

Peterwardein, #54: Based on information in Henderson, p. 224.

Mollwitz, #55: Cust, II:9, is the authority for the start time of the engagement. The end time is estimated, based on the narrative of Duffy, Frederick, p. 161.

Chotusitz, #56: The data is based on Cust, II:20.

Fontenoy, #58: The data is from O'Callaghan, p. 365.

Hohenfriedberg, #59: According to Cust, II:69, the engagement lasted seven hours. Dupuy, Frederick, p. 55, states that the engagement began at 0400 hours.

Sohr, #60: The data is based upon the account in Jany, II:147, 150.

Kesselsdorf, #61: Cust, II:74, gives the start time. This is confirmed by Jany, II:163. Dupuy, Frederick, p. 65, gives the end time.

Prestonpans, #62: The data is based on the account in Fortescue, II:130. Fortescue states, "The whole action did not last ten minutes,..." (Ibid.).

Culloden, #63: Young and Adair, p. 263, note that the battle was opened by a cannonade "shortly after one o'clock." O'Callaghan, pp. 447-448, agrees and gives the duration (p. 451).

Lobositz, #64: According to Cust, II:178, there was skirmishing between 0700 and 1100, at which time the fog lifted and the engagement began. The engagement lasted four hours (ibid.).

Prague, #65: Cust, II:208, gives the start time as 1100. The end time is given in Jany, II:404.

Plassey, #66: The times are given in Fortescue, II:426, 429.

Kolin, #67: The data is based on Cust, II:213-214.

Hastenbeck, #68: Cust, II:218, gives the start time as 0900. Savory, p. 33, gives 0800 as the start time, which seems too early. He gives 1600 as the end time, which is likely (p. 38).

Rosbach, #69: The data is based on Cust, II:228.

Leuthen, #70: The data is given in Dupuy, Frederick, pp. 115, 117.

Crefeld, #71: The data is given in Cust, II:258-259.

Zorndorf, #72: Times and duration are estimated, based on information in Duffy, Frederick, p. 183. The cannonade began at about 1000 and lasted two hours. The Prussian attack began at noon, approximately. The two armies were locked in combat until dark.

Hochkirch, #73: The data is based on the account in Duffy, Frederick, pp. 184-185.

Minden, #75: The data is based on Cust, II:329, 331.

Kunersdorf, #76: The start and end times are given in Jany, II:533, 535.

Plains of Abraham (Quebec), #77: Cust, II:306, states that "the engagement began with spirit soon after ten o'clock." Fuller describes skirmishing between 0900 and 1000, but concurs with Cust on the battle start time (pp. 503-504). Koch, p. 174, is the authority for the duration of the engagement.

Maxen, #78: The data is based on the account in Malleeson, Ambushes, pp. 290-292.

Liegnitz, #80: The data is based upon information in Cust, III:17-18.

Torgau, #81: The times are those given by Dupuy, Frederick, p. 142, and Cust, III:29.

Bunker Hill, #82: Johnson, pp. 47-49.

Quebec, #83: Boatner, American Revolution, pp. 907-908.

White Plains, #84: Ibid, pp. 1200-1201.

Trenton, #85: Ibid, pp. 1114-1115.

Princeton, #86: Ibid, pp. 891-894.

Freeman's Farm, #87: Ibid, pp. 972, 974.

Germantown, #88: Dupuy and Dupuy, Compact History of the Revolutionary War, pp. 104, 106.

Bemis Heights, #89: Boatner, American Revolution, pp. 975, 977.

Monmouth Court House, #90: Ibid, pp. 721, 724.

Camden, #91: Ibid, pp. 166-168; Dupuy and Dupuy, Outline History, p. 156. Boatner, p. 168, reports that the British cavalry commander Tarleton returned from his pursuit late in the afternoon. Therefore, the end time of the engagement is estimated to be early afternoon, or 1300.

Cowpens, #92: Boatner, American Revolution, pp. 296, 298.

Guilford Court House, #93: Ibid, p. 470; Dupuy and Dupuy, Outline History, p. 172.

Hobkirk's Hill, #94: Boatner, American Revolution, pp. 506-507.

Eutaw Springs, #95: Dupuy and Dupuy, Compact History of the Revolutionary War, pp. 416, 420.

Valmy, #96: Chandler, Dictionary, p. 456, states that the engagement began "shortly after midday" and ended at 1600 hours. Dodge, Napoleon, I:72, gives an end time of 1700 hours. We have accepted Dodge's end time.

Fleurus, #101: The start time is based upon Dodge, Napoleon, I:113. It was not possible to fix the end time definitely from any source, but Chandler, Dictionary, p. 152, states that the engagement lasted six hours.

Lodi, #102: The data is based on Marshall-Cornwall's account, p. 26.

Wierzburo, #105: The start time is given in Dodge, Napoleon, I:327. The end time is estimated from the same account, p. 329.

Pyramids, #108: The start and end times and duration are given in Chandler, Napoleon, pp. 224-226.

Stockach I, #109: The start time is estimated from the account in Dodge, Napoleon, I:578. It was not possible to fix the end time from any source, but Robinson, et al., state that the engagement lasted 15 hours (p. 39).

Mount Tabor, #110: The start and end times are close estimates, based upon Chandler's account in Napoleon, p. 239. Chandler does state that the engagement lasted 10 hours (ibid.).

Novi, #112: Phipps, V:324, is the authority for the start time. The other times are from Dodge's account in Napoleon, I:605-607. Dodge mentions "sixteen hours of desperate fighting," perhaps preferring a start time of 0400 hours and certainly overlooking the three-hour lull in the afternoon.

Marengo, #115: The data is based upon Chandler, Napoleon, pp. 290-296.

Hohenlinden, #116: The times and the duration are calculated from Dodge's account in Napoleon, II:97, 99.

Austerlitz, #117: Chandler, Napoleon, pp. 424-432.

Jena, #118: Ibid., pp. 480-488.

Auerstadt, #119: Ibid., pp. 490-495.

Eylau, #120: Ibid., pp. 540-548.

Friedland, #121: Chandler, Dictionary, pp. 162-163.

Vimeiro, #122: Napier, Vol. I:136-140.

Corunna, #123: Ibid., pp. 328-329.

Eckmuhl, #124: Chandler, Napoleon, p. 691; Esposito and Elting, map 99.

Aspern-Essling, #125: Chandler, Napoleon, p. 702.

The Raab, #126: Chandler, Dictionary, p. 355.

Wagram, #127: Chandler, Napoleon, pp. 719, 722-728.

Talavera, #128: Napier, Vol. II:171-172, 175, 178.

Bussaco, #129: Chandler, Dictionary, p. 74.

Fuentes de Onoro, #130: Ibid., pp. 150-151, 164.

Albuera, #131: Napier, Vol. III:165-171.

Salamanca, #132: Ibid., Vol. IV:267-277.

Vittoria, #133: Ibid., Vol. V:120-126.

Borodino, #134: Chandler, Napoleon, pp. 799-806.

Luetzen, #135: Ibid., pp. 882, 886-887.

Bautzen, #136: Esposito and Elting, map 131.

Dresden, #137: Chandler, Napoleon, pp. 908, 910-911; Esposito and Elting, map 135.

Leipzig, #138: Chandler, Napoleon, pp. 925-936.

Hanau, #139: Ibid., p. 938.

La Rothiere, #140: Ibid., p. 963.

Laon, #141: Ibid., pp. 988-991.

Arcis-sur-Aube, #142: Ibid., pp. 996-998.

Ligny, #143: Bowden, p. 341.

Quatre Bras, #144: Ibid.

Waterloo, #145: Ibid., p. 342.

The Thames, #146: The start time is estimated from the account in Auchinleck, p. 216. Stanley, p. 210, states that the battle lasted "scarcely 10 minutes."

Chippewa, #147: Auchinleck, p. 316..

Lundy's Lane, #148: Stanley, pp. 321-325; Auchinleck, pp. 319-320.

New Orleans, #149: Jacobs and Tucker, pp. 184-185.

Pichincha, #153: Beals, p. 222.

Ayacucho, #155: Read, pp. 95-96.

San Jacinto, #156: Connor, et al., pp. 72-73.

Palo Alto, #157: Dufour, pp. 72-74.

Resaca de la Palma, #158: The data is estimated from Dufour, pp. 77-82. There was skirmishing between 1430 and 1600 hours. The battle began at 1600 hours, approximately, and probably lasted about an hour-and-a-half. Fleeing Mexicans were seen from Fort Texas, opposite Matamoros, at 1800 hours (ibid., p. 82).

Buena Vista, #159: Dufour, pp. 77-82.

Cerro Gordo, #160: Ibid., pp. 220-222; Leckie, I:361.

Contreras, #161: Dufour, pp. 249-250.

Churubusco, #162: Ibid., pp. 251-256.

Molino del Rey, #163: Ibid., pp. 262-265; Steele, I:117.

Chapultepec, #164: The start and end times and the duration have been estimated from the narrative in Dufour, pp. 269-273. The author notes that "desultory fighting continued throughout the night..." (p. 273), but this fighting is not considered significant enough to include in the duration of the engagement.

The Alma, #165: Young and Calvert, p. 5; Gibbs, p. 173.

Inkerman, #166: Kinglake, VI:90, 436.

Magenta, #167: Berndt, p. 61.

Solferino, #168: Ibid., p. 62.

Sadowa (Koeniggratz), #169: Ibid., p. 64.

Custoza II, #170: Ibid., p. 62; Verdy du Vernois, p. 109.

First Bull Run (First Manassas), #171: Boatner, Civil War, pp. 100-101.

Wilson's Creek, #172: Johnson and Buel, Battles and Leaders, I:290. (Cited hereafter as B&L).

Belmont, #173: Ibid., p. 352.

Mill Springs, #174: Ibid., p. 390; Boatner, Civil War, p. 488.

Fort Donelson, #175: B&L, I:424; Boatner, Civil War, p. 396; Esposito, West Point Atlas, I:map 28.

Pea Ridge, #176: B&L, I:327, 329; Boatner, Civil War, p. 628.

Kernstown, #177: B&L, II:304-307.

Shiloh, #178: Ibid., I:593; Boatner, Civil War, pp. 754-756.



Front Royal, #179: B&L, II:289.

First Winchester, #180: Boatner, Civil War, pp. 936-937; Freeman, I:399, 402.

Cross Keys, #181: Boatner, Civil War, p. 210.

Port Republic, #182: Ibid., pp. 210-211.

Seven Pines (Fair Oaks), #183: B&L, II:215, 253-254; Boatner, Civil War, pp. 272-273.

Mechanicsville, #184: B&L, II:330-331.

Gaines's Mill, #185: Ibid., p. 331-340.

Glendale-Frayer's Farm, #186: Ibid., p. 373; Boatner, Civil War, pp. 721-722, 914-915.

Malvern Hill, #187: B&L, II:186.

Cedar Mountain, #188: Ibid., p. 459.

Second Bull Run (Second Manassas), #189: Ibid., pp. 474-475, 486, 489.

South Mountain, #190: Boatner, Civil War, p. 20.

Antietam (Sharpsburg), #191: B&L, II:655; Dupuy and Dupuy, Compact History of the Civil War, p. 161.

Corinth, #192: B&L, II:745-750; Foote, I:725.

Perryville, #193: B&L, III:47-48; Boatner, Civil War, p. 643.

Fredericksburg, #194: Boatner, Civil War, p. 312.

Murfreesboro (Stones River), #195: B&L, III:606-607; Boatner, Civil War, pp. 805-807.

Chancellorsville, #196: B&L, III:166, 232; Foote, II:295, 299, 310, 312. The active periods shown are those of major combat and do not include skirmishing on 1 May.

Champion's Hill, #197: Livermore, Story, III, Book II:299, 308.

Brandy Station, #198: Boatner, Civil War, pp. 80-81; Boatner reports the battle lasted over twelve hours.

Gettysburg, #199: Ibid., pp. 336, 338; Dupuy and Dupuy, Compact History of the Civil War, pp. 218, 221, 226; Foote, II:564.

Chickamauga, #200: Boatner, Civil War, pp. 151-152. Boatner reports that the combat on 19 September was an "all-day battle."

Chattanooga, #201: Ibid., p. 145; Foote, II:847-848, 850, 857.

The Wilderness, #202: Boatner, Civil War, pp. 922-923, 925.

New Market, #204: Ibid., p. 588.

Cold Harbor, #205: Ibid., pp. 164-165.

Kenesaw Mountain, #206: B&L, IV:272.

Peachtree Creek, #207: Boatner, Civil War, p. 626.

Atlanta, #208: Foote, III:477, 483.

Petersburg, #209: B&L, IV:151, 540-544; Boatner, Civil War, pp. 644-646. There are contradictions between accounts in B&L, IV, as to the end time of the evening attack on 16 June. The start time presented is from Grant's account and the end time is from Beauregard's account. The three separate attacks of 18 June as described in B&L, IV, and Boatner are estimated to have lasted two hours, except the attack at 1600 hours which lasted until dark.

Opequon Creek (Third Winchester), #211: B&L, IV:507-510; Foote, III, pp. 554-555.

Cedar Creek, #212: B&L, IV:516-520; Boatner, Civil War, pp. 132-134.

Franklin, #213: Boatner, Civil War, p. 304.

Nashville, #214: Ibid., p. 581; Foote, III:688, 695, 704.

Bentonville, #215: B&L, IV:692, 695, 703; Boatner, Civil War, p. 61. The attack on 21 March by Mower's division is estimated to have lasted two hours.

Five Forks, #217: B&L, IV:712, 714.

Saylor's Creek, #219: Foote, III:915, 920.

Weissenburg, #220: Howard, pp. 101-102.

Froeschwiller (Woerth), #221: von Moltke, pp. 15-16, 18.

Spichern, #222: Rousset, I:107, 118.

Mars la Tour, #223: von Moltke, pp. 36, 47.

Gravelotte-St. Privat, #224: Howard, p. 169; von Moltke, p. 63.

Sedan, #225: von Moltke, pp. 88, 100.

Coulmiers, #226: Howard, p. 298; von Moltke, p. 183.

Le Mans, #228: Rousset, II:157, 160, 162-164.

Isandhlwana, #230: Morris, pp. 386-387.

Ulundi, #231: Ibid., pp. 567, 570.

Majuba Hill, #232: Farwell, p. 250.

Tel el-Kebir, #233: Bond, pp. 273-274.

Omdurman, #234: Churchill, The River War, p. 278.

Modder River, #236: Pakenham, pp. 201-202.

Magersfontein, #237: Ibid., p. 212.

Colenso #238: Ibid., pp. 236-237.

Spion Kop, #239: Ibid., pp. 304, 317.

Paardeberg, #240: Ibid., pp. 352-356. The start time of the second active period is estimated to be 1400 hours when Kitchener informed the British 6th Division commander to renew the attack.

San Juan and El Caney, #241: Steele, I:604.

The Yalu, #242: Tyler, pp. 178-184, 195. According to Tyler, the battle on 30 April lasted from morning to night.

Telissu, #243: Westwood, pp. 29-30, 37, 49.

Sandepu, #246: Prussia, Yin-Kou and Sandepu, pp. 78, 83, 88, 97.

Kumanovo, #248: Price, p. 69. Price reports that the battle lasted seven hours on 24 November. Start time for this day is estimated to be 0530.

Changkufeng/Shachao Feng, #256: Cook, pp. 142, 158, 164. A Russian counter-attack beginning at 0710 is estimated to have ended at 0800. This was the final action of this engagement.

Hill 52/Shachao Feng, #257: Cook, pp. 206-207, 212.

Mons, #266: Edmonds, 1914, pp. 77, 91.

Le Cateau, #267: Ibid., pp. 156, 187.

Guise, #268: Lanrezac, pp. 236, 242.

Neuve Chapelle, #290: Edmonds and Wynne, pp. 101, 107, 122, 126, 136, 138, 150. The duration of the combat on the 13th is estimated to be one hour.

First Dardanelles Landing, #300: Aspinall-Oglander, I:174, 193, 248. The times of combat for various units overlap. ANZAC forces landing at 0430 hours are the units which started the engagement. The end of the first active period was around darkness. Turkish counterattacks against the ANZACs between 2000 and 2200 constitute the second active period.

Somme, Fourth Army Attack, #305: Churchill, The World Crisis, III:176; McEntee, Military History, p. 291.

Somme, Ovillers, #306: Churchill, The World Crisis, III:176-179. Churchill reports that the British casualties were incurred in "a little more than

two hours," (p. 179), but the estimate for the end of this engagement is evening, when the German 108th Regiment retained possession of its positions.

Somme, Bazentin Ridge, #307: Buchan, III:174, 177.

Somme, Flers-Courcelette, #308: Miles, pp. 304-344. The latest time of combat reported by Miles is 2125 hours.

Crossing of the Tigris, #325: Moberly, pp. 159, 160, 164-165, 173, 175.

Gaza I, #326: MacMunn and Falls, Part I, pp. 296, 303, 312-314.

Gaza II, #327: Ibid., pp. 332-333, 343, 347. On 18 April, the British bombarded Turkish positions (p. 334). The exact times of the bombardment are not given, and the bombardment is not counted as a period of activity.

Yvonne and Odette Positions, #333: Spaulding and Wright, p. 23.

Cantigny, #335: Patch, pp. 94-95. Patch reports that the capture of Cantigny lasted from 0645 until 0720. German counterattacks took place after capture of the town. Their duration is estimated to be one half-hour apiece.

Belleau Wood, #336: Asprey, pp. 149-159.

Hill 142, #337: Ibid., pp. 149-158.

West Wood I, #338: Ibid., pp. 173-177, 193.

Bouresches I, #339: Ibid., pp. 172, 177-186, 190-195.

Hill 192, #340: Ibid., pp. 186-189.

West Wood II, #341: Ibid., pp. 245-258.

North Wood I, The Hunting Lodge, #342: Ibid., pp. 265-269.

Bouresches II, #343: Ibid., pp. 271-273.

North Wood II, #344: Ibid., p. 295.

North Wood III, #345: Ibid., p. 300.

North Wood IV (Final Assault), #346: Ibid., pp. 302-304.

Vaux, #347: Ibid., pp. 315-319.

La Roche Wood East, #348: Ibid.

La Roche Wood West, #349: Ibid.

Missy aux Bois Ravine, #353: The Regimental Adjutant, pp. 35, 37.

Breuil, #354: Ibid.

St. Amand Farm, #355: US American Battle Monuments Commission, 1st Division,

pp. 22, 24.

Beaurepaire Farm, #356: US American Battle Monuments Commission, Second Division, pp. 27-29.

Cravancon Ferme-Chaudun, #357: US American Battle Monuments Commission, 1st Division, pp. 22, 24.

Chaudun, #358: Ibid., pp. 22-23.

Berzy le Sec, #360: The Society of the First Division, p. 135.

Lahayville-Bois de Lamarche, #365: US American Battle Monuments Commission, 1st Division, pp. 45, 49-50.

Medeah Farm, #368: Spaulding and Wright, pp. 170, 174.

Blanc Mont Ridge, #370: Ibid., pp. 170, 177.

Sommepey Wood, #371: Ibid.

Exermont-Montrefagne, #374: The Society of the First Division, p. 186. Two brief attempts to retake Montrefagne in the evening are estimated to have lasted in total one hour.

Mayache Ravine, #375: The Regimental Adjutant, p. 66; The Society of the First Division, p. 186.

Ferme des Granges-Fleville, #377: The Society of the First Division, pp. 186-187.

Hill 212, #378: The Regimental Adjutant, p. 66; The Society of the First Division, p. 196.

Hill 272, #380: US American Battle Monuments Commission, 1st Division, p. 74.

Remilly-Aillicourt, #382: Ibid., p. 87.

Hill 252-Pont Mauvis, #383: The Society of the First Division, p. 232.

Alam Halfa, #386: HERO, Comparative Analysis, pp. 133-138. Combat on 2 September lasted all day. The estimated times are 0500 hours to 1900 hours.

Chouigui Pass, #391: Ibid., p. 148.

El Guettar, #392: HERO, Modern Artillery Experience, p. 77.

Sele-Calore Corridor, #396: US, War Department, Salerno, pp. 43, 45.

Tobacco Factory, #399: Ibid., pp. 64-65, 69-71.

Caiazzo, #404: Blumenson, Salerno to Cassino, pp. 201-203; US, War Department, From the Volturno, pp. 41-45.

Triflisco, #408: Blumenson, Salerno to Cassino, pp. 198-199. US, War Department, From the Volturno, pp. 59-60.

Calabritto, #420: US, War Department, Winter Line, p. 23.

Monte Maggiore, #422: Blumenson, Salerno to Cassino, pp. 265-266; US, War Department, Winter Line, p. 26.

Campoleone, #425: US, Department of the Army, Anzio, pp. 36-39.

Campoleone Counterattack, #426: Ibid., pp. 45-46.

Carroceto, #427: Ibid., pp. 55-57.

Aprilia II, #429: Ibid., pp. 60-61.

Factory Counterattack, #430: Ibid., pp. 64-65.

Bowling Alley, #431: Ibid., pp. 70-86.

Santa Maria Infante, #434: Fisher, p. 48; US, War Department, Small Unit Actions, p. 169. Fisher reports that the 88th Division's first objective was seized within thirteen hours after the beginning of the attack. This number is used as a basis for estimating the duration of the first active period of this engagement.

San Martino, #435: Fisher, pp. 43, 55, 67.

Castellonorato, #436: Ibid., pp. 74-75.

Spigno, #437: Ibid., pp. 71, 73. Spigno was captured within a few hours after the start of a morning attack. The estimated duration of this active period is three hours (0600-0900).

Terracina, #441: HERO, CDSS, p. 25.

Moletta Offensive, #442: Ibid., p. 26.

Anzio Breakout, #444: Fisher, pp. 123, 142, 152-153.

Cisterna, #445: Ibid., pp. 129, 131, 144, 147, 154-155.

Velletri, #447: Ibid., p. 168.

Lariano, #453: Ibid., pp. 194-197.

Via Anziate, #454: US VI Corps.

Valmontone, #455: US 3d Infantry Division.

Operation "Goodwood," #459: Great Britain, Department of the Scientific Advisor, pp. 10-11; Sweet, pp. 91-92, 105.

Arracourt, #467: Cole, The Lorraine Campaign, pp. 224, 227, 230; German Fifth Panzer Army HQ; US 4th Armored Division, OCA.

Westwall, #468: German LXXXI Army Corps; Hewitt, pp. 113, 117, 119, 122; MacDonald, Siegfried Line, pp. 268, 270, 272, 275. German counterattacks on 6 May are estimated to have ended at about nightfall, or 1830.

Bourgaltroff, #474: Cole, The Lorraine Campaign, pp. 335-336.

Baerendorf II, #477: HERO, CDSS, p. 34.

Singling-Bining, #482: US, War Department, Small Unit Actions, pp. 183, 185, 209.

Jitra, #487: HERO, Breakthrough Operations, pp. 50-51. The end time of the first active period is estimated to be 0500 when Japanese reinforcements arrived.

The Pogoreloye Gorodishche Offensive, #491: HERO, Historical Scenarios, pp. 19, 25, 29, 35, 38, 45-46, 51-52, 55, 57, 60, 64, 66.

Brody, Phase I, #506: Ibid., pp. 109, 113-114.

Brody, Phase II, #507: Ibid., p. 120.

Tarawa-Betio, #517: Crawl and Love, pp. 128, 132, 147, 151, 154, 155. Combat is estimated to have ended around 1900 hours on 20 November. (See p. 147 of Crawl and Love.) The same time is estimated to be the end time for 21 November. The end time of the Japanese counterattack on the night of 22/23 November is estimated to be 0400 hours 23 November. (See p. 154 of Crawl and Love.)

Jenin, #549: Dupuy, Elusive Victory, pp. 309-310.

Jerusalem, #550: Ibid., pp. 294, 296, 298, 300-304.

Kabatiya, #551: Ibid., pp. 310-314. The action on 7 June is estimated to have started at 0500 hours and ended at 0700 when the Jordanians withdrew.

Tilfit-Zababida, #552: Ibid., p. 312.

Nablus, #553: Ibid., pp. 313-314.

Rafah, #554: Ibid., pp. 249-252. The estimated end time for the first active period is 1500 hours.

Bir Lahfan, #555: Ibid., pp. 263-264.

Abu Ageila-Um Katef, #556: Ibid., pp. 259-261.

El Arish, #557: Bar-On, pp. 46-47; Dupuy, Elusive Victory, p. 253.

Jebel Libni, #558: Dupuy, Elusive Victory, p. 270.

Gaza Strip, #559: Ibid., pp. 254-255.

Bir Hassna-Bir Thamada, #560: Ibid., p. 272.

Mitla Pass, #561: Ibid., pp. 273-274.

Bir Hanna-Bir Gifgafa, #562: Ibid., pp. 272-273.

Nakhl, #563: Ibid., p. 276.

Bir Gifgafa, #564: Ibid., pp. 274-275.

Tel Fahar-Banias, #565: Ibid., p. 323.

Rawiyeh, #566: Ibid.

Zacura-Kala, #567: Ibid., pp. 322-323.

Kerama, #568: Ibid., pp. 352, 354.

Suez Canal Assault-North, #569: Adan, pp. 20-32; Dupuy, Elusive Victory, pp. 411-416.

Suez Canal Assault-South, #570: Adan, pp. 20-32; Dupuy, Elusive Victory, pp. 411-416.

Second Army Buildup, #571: Adan, pp. 83-86, 91-100; Dupuy, Elusive Victory, pp. 417-426.

Third Army Buildup, #572: Adan, pp. 83-86, 91-100; Dupuy, Elusive Victory, pp. 417-426.

Kantara-Firdan, #573: Adan, pp. 119-153; Dupuy, Elusive Victory, pp. 426-433.

Egyptian Offensive-North, #574: Adan, pp. 237-240; Dupuy, Elusive Victory, pp. 486-489.

Egyptian Offensive-South, #575: Dupuy, Elusive Victory, pp. 486-489.

Deversoir (Chinese Farm I), #576: Adan, pp. 262-273; Dupuy, Elusive Victory, pp. 497-500; Herzog, p. 220.

Deversoir (Chinese Farm II), #577: Adan, pp. 278-303; Dupuy, Elusive Victory, pp. 506-517.

Deversoir West, #578: Adan, pp. 314-320; Dupuy, Elusive Victory, pp. 514-515.

Ismailia, #579: Dupuy, Elusive Victory, pp. 527-529.

Jebel Geneifa, #580: Adan, pp. 346-352, 356-360, 368-371.

Shallufa I, #581: Ibid., pp. 382-397.

Shallufa II, #583: Dupuy, Elusive Victory, pp. 538-539.

Suez, #584: Adan, pp. 406-407, 411-422.

Ahmadiyah, #586: Dupuy, Elusive Victory, pp. 445, 448; Herzog, pp. 106-107.

Rafid, #587: Dupuy, Elusive Victory, pp. 445, 449, 456.

Nafekh, #589: Ibid., pp. 453-454; 456-457.



Hushniyah, #591: Herzog, pp. 121, 123, 127.

Tel Shams, #594: Dupuy, Elusive Victory, p. 464; Herzog, pp. 130, 132, 133.

Tel el Hara, #596: Herzog, p. 138.

Kfar Shams-Tel Antar, #597: Dupuy, Elusive Victory, p. 533.

Hara, #598: Ibid.

Arab Counteroffensive, #599: Herzog, pp. 141-143.

Mount Hermon II, #600: Dupuy, Elusive Victory, p. 143; Herzog, p. 535.

#### Task 5: Clarification of the Width of Front Data

→ The purpose of <sup>5</sup> this task is to provide the defender's width of front for those engagements in which the defender's frontage differs significantly from that of the attacker. For a definition of width of front see page 7 of Volume II of the original data base.

The research conducted for this task has led to some changes in the attacker's width of front. Users of the data base should consider the values in the Task 5 tables as the correct ones and where applicable make changes in Table 1 of the original data base. Typographical errors are the reason for changes in several engagements, but the majority of the new numbers given for the attacker's width of front come from the discovery of new sources which made available diagrams and maps of better quality and detail than those used in the research on the original data base.

For some engagements the attacker's and defender's widths of front at different times or phases of an engagement are provided. These times or phases are noted in the right-hand margin of the Task 5 tables.

Work done on this study has turned up attacker and defender width of front data for a number of engagements which lacked this information in the original data base. Unfortunately, width of front data remains unknown for several engagements, all from the seventeenth, eighteenth, and nineteenth centuries. Research performed for the original data base failed to locate the data, and work done on this study has proven equally unsuccessful. The sources simply do not exist or are not readily available, or the maps contained in available sources are inadequate, showing, for

example, only terrain features and no troop dispositions. A "?" on the Task 5 tables indicates that the width of front data is not known.

The column heading WOF (Km) on the Task 5 tables is the width of front in kilometers rounded off to the nearest tenth of a kilometer shown for the attacking force under Attacker and for the defending force under Defender.

An asterisk after the engagement number indicates that there is a footnote for the engagement. Footnotes follow the Task 5 tables.

# WIDTH OF FRONT CLARIFICATION DATA

Nieuport, #1\*

WOF (Km)	
Attacker	Defender
0.9	0.9

White Mountain, #2\*

1.5	1.5
-----	-----

Wimpfen, #3\*

3.7	2.8
-----	-----

Dessau Bridge, #4

?	?
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Lutter, #5

?	?
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Breitenfeld I, #6\*

3.2	3.6
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

The Lech, #7\*

WOF (Km)	
Attacker	Defender
8.0	21.0
9.7	13.0

15 Apr 1632  
16 Apr 1632

Alte Veste, #8\*

2.3	2.7
-----	-----

Luetzen, #9\*

4.4	4.8
-----	-----

Noerdlingen I, #10\*

2.8	5.6
-----	-----

Wittstock, #11\*

4.4	3.0
-----	-----

Breitenfeld II, #12\*

3.5	3.5
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Rocroi, #13\*

WOF (Km)	
Attacker	Defender
2.4	1.8

Tuttlingen, #14\*

3.0	2.0
-----	-----

Freiburg, #15\*

6.4	6.4
-----	-----

Jankau, #16\*

3.1	3.1
-----	-----

Mergentheim, #17\*

7.0	7.0
-----	-----

Allerheim (Noerdlingen II), #18\*

3.2	3.2
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Lens, #19\*

WOF (Km)	
Attacker	Defender
2.0	3.5

Edgehill, #20\*

3.2	3.2
-----	-----

Marston Moor, #21\*

2.8	2.8
-----	-----

Tippermuir, #22\*

1.1	1.1
-----	-----

Kilsyth, #23\*

0.7	0.7
-----	-----

Newbury II, #24\*

2.8	2.0
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Naseby, #25\*

WOF (Km)	
Attacker	Defender
1.6	1.6

Preston, #26\*

1.0	0.6
-----	-----

Dunbar, #27\*

1.8	2.7
-----	-----

Worcester, #28\*

5.6	5.6
-----	-----

St. Antoine, #29\*

1.5	1.5
-----	-----

The Dunes, #30\*

4.0	4.4
-----	-----



# WIDTH OF FRONT CLARIFICATION DATA

The Raab, #31\*

WOF (Km)	
Attacker	Defender
3.8	4.1

Vienna, #32\*

8.8	8.0
-----	-----

Chocim II, #33

?	?
---	---

Sinsheim, #34\*

5.0	5.0
-----	-----

Senef, #35\*

1.8	1.8
-----	-----

Enzheim, #36\*

5.6	7.0
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

**Turckheim, #37**

WOF (Km)	
Attacker	Defender
?	?

**Fehrbellin, #38 \***

3.4	2.0
-----	-----

**Sedgemoor, #39\***

0.8	1.2
-----	-----

**Killiecrankie, #40\***

1.0	1.0
-----	-----

**Walcourt, #41\***

1.0	1.0	0900-1200 hours 1200-1800 hours
3.2	3.2	

**Fleurus, #42**

?	?
---	---

# WIDTH OF FRONT CLARIFICATION DATA

The Boyne, #43\*

WOF (Km)	
Attacker	Defender
8.0	5.0

Aughrim, #44\*

6.4	4.8
-----	-----

Steenkerke, #45\*

2.4	5.2
-----	-----

Neerwinden (Landen), #46\*

5.7	8.6
-----	-----

Marsaglia, #47

?	?
---	---

Zenta, #48\*

4.2	2.7
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Poltava, #49 \*

WOF (Km)		first phase second phase
Attacker	Defender	
1.2 1.8	3.2 2.2	

Blenheim, #50\*

6.4	7.1
-----	-----

Ramillies, #51\*

4.8	5.2
-----	-----

Oudenarde, #52\*

6.4	6.0
-----	-----

Malplaquet, #53\*

8.2	8.8
-----	-----

Peterwardein, #54

?	?
---	---

# WIDTH OF FRONT CLARIFICATION DATA

Mollwitz, #55\*

WOF (Km)	
Attacker	Defender
2.7	4.3

Chotusitz, #56\*

3.4	3.7
-----	-----

Dettingen, #57\*

2.3	2.2
-----	-----

Fontenoy, #58\*

2.8	4.0
-----	-----

Hohenfriedberg, #59\*

4.8	5.5	expanding to...
5.9	5.5	

Sohr, #60\*

3.5	3.2
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Kesselsdorf, #61\*

WOF (Km)	
Attacker	Defender
4.4	3.0

Prestonpans, #62\*

0.6	0.8
-----	-----

Culloden, #63\*

0.7	1.5
-----	-----

Lobositz, #64\*

3.2	5.6
-----	-----

Prague, #65\*

4.8	5.2
-----	-----

Plassey, #66\*

3.2	0.7
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Kolin, #67\*

WOF (Km)	
Attacker	Defender
5.2	6.4

Hastenbeck, #68\*

5.5	10.0
-----	------

Rosbach, #69\*

2.7	4.0
-----	-----

Leuthen, #70\*

4.3	7.6
-----	-----

Crefeld, #71\*

10.5	7.5
------	-----

Zorndorf, #72\*

3.4	4.8
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Hochkirch, #73\*

WOF (Km)	
Attacker	Defender
5.6	4.2

Bergen, #74\*

3.2	3.2
-----	-----

Minden, #75\*

4.0	4.0
-----	-----

Kunersdorf, #76\*

5.4	6.4
-----	-----

Plains of Abraham (Quebec), #77\*

1.0	1.2
-----	-----

Maxen, #78

?	?
---	---



# WIDTH OF FRONT CLARIFICATION DATA

Warburg, #79\*

WOF (Km)	
Attacker	Defender
5.0	6.4

Liegnitz, #80\*

2.4	4.0
-----	-----

Torgau, #81\*

8.0	11.4
-----	------

Bunker Hill, #82\*

0.5	0.7
-----	-----

Quebec, #83\*

0.2	0.2
-----	-----

White Plains, #84\*

2.4	2.8
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Trenton, #85\*

WOF (Km)	
Attacker	Defender
1.3	0.2

Princeton, #86\*

0.6	0.3
-----	-----

Freeman's Farm, #87\*

1.5	1.5
-----	-----

Germantown, #88\*

4.0	2.8
-----	-----

Bemis Heights, #89\*

0.6	1.2
-----	-----

Monmouth Court House, #90\*

1.0	1.6
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Camden, #91\*

WOF (Km)	
Attacker	Defender
1.6	1.6

Cowpens, #92\*

0.2	0.2
-----	-----

Guilford Court House, #93\*

2.0	2.0
-----	-----

Hobkirk's Hill, #94\*

0.6	0.9
-----	-----

Eutaw Springs, #95\*

0.4	0.4
-----	-----

Valmy, #96\*

7.0	8.0
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Jemappes. #97\*

WOF (Km)	
Attacker	Defender
5.0	6.4

Neerwinden, #98\*

13.0	12.0
------	------

Hondschoote, #99\*

8.0	5.6
-----	-----

Wattignies, #100\*

16.0	16.0
------	------

Fleurus, #101\*

16.0	20.0
------	------

Lodi, #102\*

1.6	2.4
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Castiglione, #103\*

WOF (Km)	
Attacker	Defender
2.4	4.0
8.0	6.0

early morning phase  
late morning phase

Neresheim, #104\*

40.0	40.0
------	------

Wuerzburg, #105\*

20.0	13.0
------	------

Arcola, #106\*

5.0	5.0
-----	-----

Rivoli, #107\*

6.0	8.0
4.8	4.0

14 Jan 1797  
15 Jan 1797

Pyramids, #108\*

5.0	6.2
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Stockach I, #109\*

WOF (Km)		dawn, 1st phase 2d phase
Attacker	Defender	
17.0 7.0	14.0 13.0	

Mount Tabor, #110\*

15.0	6.4
------	-----

Zurich I, #111\*

8.0	10.0
-----	------

Novi, #112\*

13.0	11.6
------	------

Zurich III, #113\*

14.0	32.0
------	------

Moeskirch, #114\*

16.0	16.0
------	------

# WIDTH OF FRONT CLARIFICATION DATA

Marengo, #115\*

WOF (Km)	
Attacker	Defender
4.0	6.8

Hohenlinden, #116\*

18.0	18.0
------	------

Austerlitz, #117\*

13.0	11.2
------	------

Jena, #118\*

9.0	9.0
-----	-----

Auerstadt, #119\*

6.0	6.0
-----	-----

Eylau, #120\*

8.0	8.0
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Friedland, #121\*

WOF (Km)	
Attacker	Defender
11.0	11.0

Vimeiro, #122\*

3.2	3.0
-----	-----

Corunna, #123\*

5.0	4.0
-----	-----

Eckmuehl, #124\*

18.0	18.0
------	------

Aspern-Essling, #125\*

7.5	5.0
-----	-----

The Raab, #126\*

11.5	10.0
------	------



# WIDTH OF FRONT CLARIFICATION DATA

Wagram, #127\*

WOF (Km)	
Attacker	Defender
24.0	24.0

Talavera, #128\*

4.8	4.8
-----	-----

Bussaco, #129\*

12.0	12.0
------	------

Fuentes de Onoro, #130\*

6.4	6.4
-----	-----

Albuera, #131\*

4.8	4.8	1st phase 2d phase
2.8	2.8	

Salamanca, #132\*

6.4	6.0
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Vittoria, #133\*

WOF (Km)	
Attacker	Defender
11.0	11.0

Borodino, #134\*

6.0	7.6
-----	-----

Luetzen, #135\*

8.0	8.0
-----	-----

Bautzen, #136\*

9.6	11.2	20 May 1813
19.0	18.0	21 May 1813

Dresden, #137\*

13.0	13.0
------	------

Leipzig, #138\*

13.6	20.8	16 Oct 1813
24.0	24.0	18 Oct 1813

# WIDTH OF FRONT CLARIFICATION DATA

Hanau, #139\*

WOF (Km)	
Attacker	Defender
1.6	3.2

La Rothiere, #140\*

4.8	9.6	1300-1600 hours
6.4	6.4	1600-2000 hours

Laon, #141\*

6.4	10.4	9 Mar 1814
4.8	6.4	10 Mar 1814

Arcis-sur-Aube, #142\*

4.8	4.8	20 Mar 1814
6.4	6.4	21 Mar 1814

Ligny, #143\*

12.0	12.0
------	------

Quatre Bras, #144\*

4.0	4.0
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Waterloo, #145\*

WOF (Km)		
Attacker	Defender	
4.0	6.4	1130-1400 hours
9.0	9.0	1400-1930 hours
		2130

The Thames, #146\*

0.2	0.2
-----	-----

Chippewa, #147\*

1.6	1.6
-----	-----

Lundy's Lane, #148\*

0.5	0.7
-----	-----

New Orleans, #149\*

2.3	3.0
-----	-----

Boyaca, #150\*

1.5	1.5
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Carabobo, #151\*

WOF (Km)	
Attacker	Defender
3.2	2.5

Bombona, #152\*

7.5	7.5
-----	-----

Pichincha, #153\*

1.0	1.0
-----	-----

Junin, # 154\*

1.4	1.4
-----	-----

Ayacucho, #155\*

4.5	4.5
-----	-----

San Jacinto, #156\*

0.3	0.2
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Pala Alto, #157\*

WOF (Km)		
Attacker	Defender	
1.2	1.6	1st phase
2.7	3.4	2d phase

Resaca de la Palma, #158\*

1.9	2.7
-----	-----

Buena Vista, #159\*

7.0	13.0
-----	------

Cerro Gordo, #160\*

2.4	4.0
-----	-----

Contreras, #161\*

2.5	2.7
-----	-----

Churubusco, #162\*

2.0	1.1
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Molino del Rey, #163\*

WOF (Km)	
Attacker	Defender
1.6	1.0

Chapultepec, #164\*

1.8	3.5
-----	-----

The Alma, #165\*

10.0	11.0
------	------

Inkerman, #166\*

2.5	2.5
-----	-----

Magenta, #167\*

8.0	6.0
-----	-----

Solferino, #168\*

11.0	11.0
------	------

# WIDTH OF FRONT CLARIFICATION DATA

Sadowa (Koeniggraetz), #169\*

WOF (Km)		
Attacker	Defender	
12.0	24.0	morning phase
32.0	24.0	afternoon phase

Custoza II, #170

?	?
---	---

First Bull Run (First Manassas), #171\*

4.5	4.0
-----	-----

Wilson's Creek, #172\*

2.0	2.4
-----	-----

Belmont, #173\*

1.0	1.0
-----	-----

Mill Springs, #174\*

0.6	0.8
-----	-----



# WIDTH OF FRONT CLARIFICATION DATA

Fort Donelson, #175\*

WOF (Km)	
Attacker	Defender
1.1	1.1

Pea Ridge, #176\*

6.0	4.0	7 Mar 1862
3.2	2.0	8 Mar 1862

Kernstown, #177\*

0.8	0.8
-----	-----

Shiloh, #178\*

6.0	8.0	morning, 6 Apr 1862
4.4	4.4	evening, 6 Apr 1862
4.0	3.2	morning, 7 Apr 1862

Front Royal, #179\*

2.0	2.0
-----	-----

First Winchester, #180\*

1.6	1.6
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Cross Keys, #181\*

WOF (Km)	
Attacker	Defender
2.8	2.8

Port Republic, #182\*

2.4	2.4
-----	-----

Seven Pines (Fair Oaks), #183\*

6.4	6.4
-----	-----

Mechanicsville, #184\*

3.2	3.2
-----	-----

Gaines's Mill, #185\*

3.6	3.6
-----	-----

Glendale-Frayser's Farm, #186\*

3.2	3.2
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Malvern Hill, #187\*

WOF (Km)	
Attacker	Defender
1.6	3.2

Cedar Mountain, #188\*

1.6	1.6
-----	-----

Second Bull Run (Second Manassas), #189\*

4.0	2.4	29 Aug 1862
3.6	4.8	30 Aug 1862

South Mountain, #190\*

3.0	2.0
-----	-----

Antietam (Sharpsburg), #191\*

6.4	4.0
-----	-----

Corinth, #192\*

4.0	3.4
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Perryville, #193\*

WOF (Km)	
Attacker	Defender
7.2	9.6

Fredericksburg, #194\*

7.8	13.2
-----	------

Murfreesboro (Stones River), #195\*

13.6	11.2	morning, 31 Dec 1862
7.2	6.4	evening, 31 Dec 1862

Chancellorsville, #196\*

6.8	15.6	morning, 2 May 1863
5.2	7.2	morning, 6 May 1863

Champion's Hill, #197\*

4.0	6.8
-----	-----

Brandy Station, #198\*

4.4	3.6
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

## Gettysburg, #199\*

WOF (Km)		
Attacker	Defender	
5.1	4.1	1430 hours, 1 Jul 1863
9.5	5.4	1530 hours, 2 Jul 1863
7.7	6.8	1430 hours, 3 Jul 1863

## Chickamauga, #200\*

6.4	7.2
-----	-----

## Chattanooga, #201\*

4.8	7.2
-----	-----

## The Wilderness, #202\*

8.4	6.4
-----	-----

## Spotsylvania, #203\*

5.2	7.6	1600 hours, 9 May 1864
2.8	7.6	12 May 1864
4.8	6.4	18 May 1864

## New Market, #204\*

2.8	2.8
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Cold Harbor, #205\*

WOF (Km)	
Attacker	Defender
9.6	11.2

Kenesaw Mountain, #206\*

15.6	15.6
------	------

Peachtree Creek, #207\*

1.6	1.6
-----	-----

Atlanta, #208\*

4.8	6.4
-----	-----

Petersburg, #209\*

4.0	4.0	15 Jun 1864
4.8	3.6	18 Jun 1864

Globe Tavern, #210\*

2.4	2.4
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Opequon Creek (Third Winchester), #211\*

WOF (Km)	
Attacker	Defender
3.6	4.8

Cedar Creek, #212\*

4.8	6.4
-----	-----

Franklin, #213\*

4.0	3.6
-----	-----

Nashville, #214\*

5.6	8.0	1300 hours, 15 Dec 1864
7.6	4.8	1600 hours, 16 Dec 1864

Bentonville, #215\*

2.8	3.6
-----	-----

Dinwiddie Court House & White Oak Road, #216\*

2.4	2.4
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Five Forks, #217\*

WOF (Km)	
Attacker	Defender
2.4	2.4

Selma, #218\*

1.6	8.0
-----	-----

Sayler's Creek, #219\*

7.2	7.2
-----	-----

Weissenburg, #220\*

5.0	2.5
-----	-----

Froeschwiller (Woerth), #221\*

10.0	8.0
------	-----

Spichern, #222\*

6.0	2.5
-----	-----



# WIDTH OF FRONT CLARIFICATION DATA

Mars la Tour, #223\*

WOF (Km)	
Attacker	Defender
12.0	10.0

Gravelotte-St. Privat, #224\*

16.0	16.0
------	------

Sedan, #225\*

13.0	13.0
------	------

Coulmiers, #226\*

10.0	10.0
------	------

Orleans, #227\*

60.0	60.0
------	------

Le Mans, #228\*

25.0	25.0
------	------

# WIDTH OF FRONT CLARIFICATION DATA

Belfort, #229\*

WOF (Km)	
Attacker	Defender
7.5	15.0

Isandhlwana, #230\*

4.0	1.5
-----	-----

Ulundi, #231\*

2.0	1.5
-----	-----

Majuba Hill, #232\*

1.0	1.4
-----	-----

Tel el-Kebir, #233\*

6.4	6.4
-----	-----

Omdurman, #234\*

3.2	4.4
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Adowa, #235\*

WOF (Km)	
Attacker	Defender
7.0	14.0

Modder River, #236\*

4.0	4.8
-----	-----

Magersfontein, #237\*

7.2	12.8
-----	------

Colenso, #238\*

9.5	10.0
-----	------

Spion Kop, #239\*

3.5	8.2
-----	-----

Paardeberg, #240\*

4.0	4.0
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

San Juan and El Caney, #241\*

WOF (Km)	
Attacker	Defender
3.2	1.6

The Yalu, #242\*

8.0	14.0
-----	------

Telissu, #243\*

8.0	6.5
-----	-----

Liaoyang, #244\*

42.0	42.0
------	------

The Sha-Ho, #245\*

64.0	64.0
------	------

Sandepu, #246\*

24.0	24.0
------	------

# WIDTH OF FRONT CLARIFICATION DATA

Mukden, #247\*

WOF (Km)	
Attacker	Defender
64.0	75.0

Kumanovo, #248\*

30.0	30.0
------	------

Lule' Burgas, #249\*

32.0	40.0
------	------

Prelip, #250\*

22.0	10.0
------	------

Monastir, #251\*

37.0	20.0
------	------

Adrianople, #252\*

80.0	32.0
------	------

# WIDTH OF FRONT CLARIFICATION DATA

Warsaw, #253\*

WOF (Km)	
Attacker	Defender
335.0	335.0

The Nieman, #254\*

320.0	320.0
-------	-------

Guadalajara-Brihuega, #255\*

11.0	11.0
------	------

Changkufeng/Shachaofeng, #256\*

3.0	3.0
-----	-----

Hill 52/Shachaofeng, #257\*

3.0	3.0
-----	-----

Changkufeng/Hill 52, #258\*

6.0	6.0
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Nomonhan: Opening Engagement, #259\*

WOF (Km)	
Attacker	Defender
3.0	5.0

Nomonhan: Soviet Counteroffensive, #260\*

50.0	60.0
------	------

Suomussalmi, #261\*

32.0	32.0
------	------

Alsace-Lorraine I, #262\*

225.0	225.0
-------	-------

Alsace-Lorraine II, #263\*

225.0	225.0
-------	-------

The Ardennes, #264\*

100.0	100.0
-------	-------

# WIDTH OF FRONT CLARIFICATION DATA

The Sambre, #265\*

WOF (Km)	
Attacker	Defender
53.0	53.0

Mons, #266\*

35.0	35.0
------	------

Le Cateau, #267\*

23.0	23.0
------	------

Guise, #268\*

50.0	50.0
------	------

The Heights of Nancy, #269\*

144.0	144.0
-------	-------

The Ourcq I, #270\*

18.0	18.0
------	------



# WIDTH OF FRONT CLARIFICATION DATA

The Ourcq II, #271\*

WOF (Km)	
Attacker	Defender
32.0	32.0

The Petit Morin, #272\*

37.0	27.8	6 Sep 1914
29.0	21.8	7 Sep 1914
16.0	12.0	8 Sep 1914

The Two Morins, #273\*

30.4	30.4	6 Sep 1914
14.4	14.4	8 Sep 1914

The Marshes of St. Gond, #274\*

42.0	42.0
------	------

Vitry le Francois, #275\*

64.0	64.0
------	------

The Gap of Revigny, #276\*

64.0	64.0
------	------

# WIDTH OF FRONT CLARIFICATION DATA

The Aisne, #277\*

WOF (Km)	
Attacker	Defender
112.0	112.0

Stalluponen, #278\*

32.0	32.0	morning, 17 Aug 1914 evening, 17 Aug 1914
15.0	15.0	

Gumbinnen, #279\*

64.0	64.0
------	------

Tannenberg, #280\*

120.0	120.0
-------	-------

Masurian Lakes, #281\*

121.0	121.0
-------	-------

Krasnik, #282\*

64.0	64.0
------	------

# WIDTH OF FRONT CLARIFICATION DATA

Komarov, #283\*

WOF (Km)	
Attacker	Defender
72.0	72.0

The Gnila Lipa, #284\*

150.0	150.0
-------	-------

Rava Russka, #285\*

160.0	160.0
-------	-------

Lodz, #286\*

120.0	120.0
-------	-------

The Jadar, #287\*

74.0	74.0
------	------

The Kolubra, #288\*

106.0	106.0
-------	-------

# WIDTH OF FRONT CLARIFICATION DATA

Eastern Champagne, #289\*

WOF (Km)	
Attacker	Defender
17.0	17.0

Neuve Chapelle, #290\*

3.6	3.6
-----	-----

Ypres II, #291\*

23.0	23.0	22 Apr 1915
13.6	13.6	24 May 1915

Festubert, #292\*

6.0	6.0
-----	-----

Loos, #293\*

7.2	7.2	25 Sep 1915
14.4	14.4	14 Oct 1915

The Winter Battle (Masuria), #294\*

209.0	209.0
-------	-------

# WIDTH OF FRONT CLARIFICATION DATA

Gorlice-Tarnow (Opening Phase Only), #295\*

WOF (Km)	
Attacker	Defender
121.0	121.0

First Isonzo, #296\*

16.0	16.0
------	------

Second Isonzo, #297\*

29.0	29.0
------	------

Third Isonzo, #298\*

29.0	29.0
------	------

Fourth Isonzo, #299\*

29.0	29.0
------	------

First Dardanelles Landing, #300\*

11.2	11.2
------	------

# WIDTH OF FRONT CLARIFICATION DATA

Suvla Bay, #301\*

WOF (Km)	
Attacker	Defender
4.8	4.8

Kut-el-Amara, #302\*

16.0	16.0
------	------

Ctesiphon, #303\*

12.1	16.0
------	------

First Somme, #304\*

62.4	62.4
------	------

Somme, Fourth Army Attack, #305\*

19.2	19.2
------	------

Somme, Ovillers, #306\*

1.4	1.4
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Somme, Bazentin Ridge, #307\*

WOF (Km)	
Attacker	Defender
4.5	4.5

Somme, Flers-Courcelette, #308\*

9.6	9.6
-----	-----

Caucasus Winter Offensive, #309\*

110.0	110.0
-------	-------

Lake Narotch, #310\*

20.0	20.0
------	------

1916 Brusilov Offensive, #311\*

400.0	400.0
-------	-------

Fifth Isonzo, #312\*

48.0	48.0
------	------

# WIDTH OF FRONT CLARIFICATION DATA

Asiago, #313\*

WOF (Km)	
Attacker	Defender
48.0	48.0

Trentino Counteroffensive, #314\*

48.0	48.0
------	------

Sixth Isonzo (Gorizia), #315\*

22.5	22.5
------	------

Arras, #316\*

32.0	32.0
------	------

Aisne, II, #317\*

64.0	64.0
------	------

Messines, #318\*

19.0	19.0
------	------



# WIDTH OF FRONT CLARIFICATION DATA

Ypres III, #319\*

WOF (Km)	
Attacker	Defender
48.0	48.0

Cambrai I, #320\*

16.0	16.0
------	------

Cambrai II, #321\*

22.0	22.0
------	------

Tenth Isonzo, #322\*

25.0	25.0
------	------

Eleventh Isonzo, #323\*

30.0	30.0
------	------

Caporetto (Twelfth Isonzo), #324\*

160.0	160.0
-------	-------

# WIDTH OF FRONT CLARIFICATION DATA

Crossing of the Tigris, #325\*

WOF (Km)	
Attacker	Defender
7.2	40.0

Gaza I, #326\*

12.0	19.2
------	------

Gaza II, #327\*

24.0	24.0
------	------

Gaza III, #328\*

32.0	48.0
------	------

Junction Station, #329\*

24.0	24.0
------	------

Second Somme, Phase I (Somme-Peronne), #330\*

97.0	97.0
------	------

# WIDTH OF FRONT CLARIFICATION DATA

Second Somme, Phase II (Somme-Montdidier), #331\*

WOF (Km)	
Attacker	Defender
140.0	140.0

Lys, #332\*

32.0	32.0
------	------

Yvonne and Odette Positions, #333\*

0.3	0.3
-----	-----

Chemin des Dames, #334\*

56.3	56.3	27 May 1918 3 Jun 1918
128.0	128.0	

Cantigny, #335\*

1.5	1.5
-----	-----

Belleau Wood, #336\*

4.4	4.4
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Hill 142, #337\*

WOF (Km)	
Attacker	Defender
0.3	0.3

West Wood I, #338\*

0.8	0.8
-----	-----

Bouresches I, #339\*

0.7	0.7
-----	-----

Hill 192, #340\*

1.6	1.6
-----	-----

West Wood II, #341\*

0.8	0.8
-----	-----

North Wood I, The Hunting Lodge, #342\*

0.8	0.8
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Bouresches II, #343\*

WOF (Km)	
Attacker	Defender
1.6	1.6

North Wood II, #344\*

1.2	1.2
-----	-----

North Wood III, #345\*

1.2	1.2
-----	-----

North Wood IV (Final Assault), #346\*

0.8	0.8
-----	-----

Vaux, #347\*

1.8	1.8
-----	-----

La Roche Wood East, #348\*

0.7	1.0
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

La Roche Wood West, #349\*

WOF (Km)	
Attacker	Defender
0.7	0.7

Noyon-Montdidier, #350\*

43.0	43.0
------	------

Champagne-Marne, #351\*

105.0	105.0
-------	-------

Aisne-Marne I, #352\*

130.0	130.0
-------	-------

Missy aux Bois Ravine, #353\*

0.7	0.7
-----	-----

Breuil, #354\*

0.8	0.8
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

St. Amand Farm, #355\*

WOF (Km)	
Attacker	Defender
0.3	0.3

Beaurepaire Farm, #356\*

1.3	1.3
-----	-----

Cravancon Ferme-Chaudun, #357\*

1.5	1.5
-----	-----

Chaudun, #358\*

0.6	0.6
-----	-----

Aisne-Marne II, #359\*

128.0	128.0
-------	-------

Berzy le Sec, #360\*

1.0	1.0
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Buzancy Ridge, #361\*

WOF (Km)	
Attacker	Defender
1.0	1.0

Picardy, 1918, Phase I, #362\*

70.0	70.0
------	------

Picardy, 1918, Phase II, #363\*

150.0	150.0
-------	-------

St. Mihiel, #364\*

72.0	72.0
------	------

Lahayville-Bois de Lamarche, #365\*

1.2	1.2	morning, 12 Sep 1918 evening, 12 Sep 1918
2.0	2.0	

Meuse-Argonne, Phase I, #366\*

53.0	53.0
------	------



# WIDTH OF FRONT CLARIFICATION DATA

Blanc Mont I, #367\*

WOF (Km)	
Attacker	Defender
6.4	6.4

Medeah Farm, #368\*

0.6	0.6
-----	-----

Essen Hook, #369\*

0.8	0.8
-----	-----

Blanc Mont Ridge, #370\*

1.3	1.3
-----	-----

Sommepy Wood, #371\*

1.5	1.5
-----	-----

Blanc Mont II, #372\*

4.0	4.0
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Meuse-Argonne, Phase II, #373\*

WOF (km)	
Attacker	Defender
104.0	104.0

Exermont-Montrefagne, #374\*

0.9	0.9
-----	-----

Mayache Ravine, #375\*

1.0	1.0
-----	-----

La Neuville le Comte Ferme, #376\*

1.0	1.0
-----	-----

Ferme des Granges-Fleville, #377\*

1.0	1.0
-----	-----

Hill 212, #378\*

0.8	0.8
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Bois de Boyon-Montrefagne, #379\*

WOF (Km)	
Attacker	Defender
0.9	0.9

Hill 272, #380\*

0.9	0.9
-----	-----

Meuse-Argonne, Phase III, #381\*

169.0	169.0
-------	-------

Remilly-Aillicourt, #382\*

0.5	0.5
-----	-----

Hill 252-Pont Maugis, #383\*

1.1	1.1
-----	-----

The Piave, #384\*

144.0	144.0
-------	-------

# WIDTH OF FRONT CLARIFICATION DATA

Megiddo, #385\*

WOF (Km)	
Attacker	Defender
24.0	24.0

Alam Halfa, #386\*

90.0	90.0
------	------

El Alamein II, #387\*

61.0	61.0
------	------

Operation "Lightfoot," #388\*

61.0	61.0
------	------

Alamein Bridgehead Expansion, #389\*

61.0	61.0
------	------

Operation "Supercharge," #390\*

61.0	61.0
------	------

# WIDTH OF FRONT CLARIFICATION DATA

Chouigui Pass, #391\*

WOF (Km)	
Attacker	Defender
0.6	1.6

El Guettar, #392\*

25.0	25.0
------	------

Sedjenane-Bizerta, #393\*

32.0	32.0	23 Apr 1943
14.5	14.5	1 May 1943

Amphitheater, #394\*

13.0	13.0
------	------

Port of Salerno, #395\*

6.0	6.0
-----	-----

Sele-Calore Corridor, #396\*

11.0	11.0
------	------

# WIDTH OF FRONT CLARIFICATION DATA

Battipaglia I, #397\*

WOF (Km)	
Attacker	Defender
4.8	4.8

Vietri I, #398\*

14.5	14.5
------	------

Tobacco Factory, #399\*

9.7	9.7
-----	-----

Battipaglia II, #400\*

12.0	12.0
------	------

Eboli, #401\*

7.5	7.5
-----	-----

Vietri II, #402\*

14.5	14.5
------	------

# WIDTH OF FRONT CLARIFICATION DATA

Grazzanise, #403\*

WOF (Km)	
Attacker	Defender
1.5	1.5

Caiazzo, #404\*

9.0	9.0
-----	-----

Capua, #405\*

2.0	2.0
-----	-----

Castel Volturno, #406\*

9.6	9.6
-----	-----

Monte Acero, #407\*

8.0	8.0
-----	-----

Triflisco, #408\*

9.0	9.0
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Dragoni, #409\*

WOF (Km)	
Attacker	Defender
5.2	5.2

Canal I, #410\*

9.0	9.0
-----	-----

Monte Grande (Volturno), #411\*

9.0	9.0
-----	-----

Canal II, #412\*

9.0	9.0
-----	-----

Francolise, #413\*

6.4	6.4
-----	-----

Santa Maria Oliveto, #414\*

4.8	4.8
-----	-----



# WIDTH OF FRONT CLARIFICATION DATA

Monte Camino I, #415\*

WOF (Km)	
Attacker	Defender
5.0	5.0

Monte Lungo, #416\*

6.0	6.0
-----	-----

Pozzilli, #417\*

8.0	8.0
-----	-----

Monte Camino II, #418\*

0.5	0.5
-----	-----

Monte Rotondo, #419\*

4.5	4.5
-----	-----

Calabritto, #420\*

2.0	2.0
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Monte Camino III, #421\*

WOF (Km)	
Attacker	Defender
2.0	2.0

Monte Maggiore, #422\*

1.0	1.0
-----	-----

Aprilia I, #423\*

7.0	7.0
-----	-----

The Factory, #424\*

7.0	7.0
-----	-----

Campoleone, #425\*

11.0	11.0
------	------

Campoleone Counterattack, #426\*

11.0	11.0	3 Feb 1944
5.2	5.2	5 Feb 1944

# WIDTH OF FRONT CLARIFICATION DATA

Carroceto, #427\*

WOF (Km)	
Attacker	Defender
8.0	8.0

Moletta River Defense, #428\*

3.2	3.2
-----	-----

Aprilia II, #429\*

2.0	2.0
-----	-----

Factory Counterattack, #430\*

2.0	2.0
-----	-----

Bowling Alley, #431\*

9.6	9.6
-----	-----

Moletta River II, #432\*

4.0	4.0
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Fiocchia, #433\*

WOF (Km)	
Attacker	Defender
8.0	8.0

Santa Maria Infante, #434\*

7.5	7.5
-----	-----

San Martino, #435\*

5.5	5.5
-----	-----

Castellonorato, #436\*

5.0	5.0
-----	-----

Spigno, #437\*

5.5	5.5
-----	-----

Formia, #438\*

4.0	4.0
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Monte Grande (Rome), #439\*

WOF (Km)	
Attacker	Defender
9.0	9.0

Itri-Fondi, #440\*

6.0	6.0
-----	-----

Terracina, #441\*

15.0	15.0
------	------

Moletta Offensive, #442\*

8.5	8.5
-----	-----

Anzio-Albano Road, #443\*

6.0	6.0
-----	-----

Anzio Breakout, #444\*

5.6	5.6
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Cisterna, #445\*

WOF (Km)	
Attacker	Defender
7.8	7.8

Sezze, #446\*

14.0	14.0
------	------

Velletri, #447\*

14.0	14.0
------	------

Campoleone Station, #448\*

6.5	6.5
-----	-----

Villa Crocetta, #449\*

5.0	5.0
-----	-----

Ardea, #450\*

9.0	9.0
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Fosso di Campoleone, #451\*

WOF (Km)	
Attacker	Defender
11.0	11.0

Lanuvio, #452\*

3.0	3.0
-----	-----

Lariano, #453\*

5.0	5.0
-----	-----

Via Anziate, #454\*

4.0	4.0
-----	-----

Valmontone, #455\*

5.5	5.5
-----	-----

Tarto-Tiber, #456\*

7.0	7.0
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Il Gioglio Pass, #457\*

WOF (Km)	
Attacker	Defender
4.0	4.0

St. Lo, #458\*

12.0	12.0
------	------

Operation "Goodwood," #459\*

21.0	21.0
------	------

Operation "Cobra," #460\*

11.0	11.0
------	------

Mortain, #461\*

9.0	9.0
-----	-----

Chartres, #462\*

5.0	5.0
-----	-----



# WIDTH OF FRONT CLARIFICATION DATA

Melun, #463\*

WOF (Km)	
Attacker	Defender
5.0	5.0

Seine River, #464\*

45.0	45.0
------	------

Moselle-Metz, #465\*

25.0	25.0
------	------

Metz, #466\*

25.0	25.0
------	------

Arracourt, #467\*

10.4	10.4
------	------

Westwall, #468\*

12.5	12.5
------	------

# WIDTH OF FRONT CLARIFICATION DATA

Schmidt, #469\*

WOF (Km)	
Attacker	Defender
9.5	9.5

Seille-Nied, #470\*

48.0	48.0
------	------

Foret de Chateau-Salins, #471\*

16.6	16.6
------	------

Morhange, #472\*

7.7	7.7	13 Nov 1944
10.3	10.3	15 Nov 1944

Morhange-Faulquemont, #473\*

49.0	49.0
------	------

Bourgaltroff, #474\*

11.3	11.3
------	------

# WIDTH OF FRONT CLARIFICATION DATA

Sarre-St. Avoird, #475\*

WOF (Km)	
Attacker	Defender
64.0	64.0

Baerendorf I, #476\*

3.5	3.5
-----	-----

Baerendorf II, #477\*

11.3	11.3
------	------

Burbach-Durstel, #478\*

11.3	11.3	27 Nov 1944
9.7	9.7	29 Nov 1944

Durstel-Faerbersviller, #479\*

51.2	51.2
------	------

Sarre-Union, #480\*

4.5	4.5
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Sarre-Singling, #481\*

WOF (Km)	
Attacker	Defender
32.0	32.0

Singling-Bining, #482\*

3.6	3.6
-----	-----

Sauer River, #483\*

14.5	14.5
------	------

St. Vith, #484\*

12.0	12.0
------	------

Bastogne, #485\*

12.0	12.0
------	------

Sedan-Meuse River, #486\*

9.0	9.0
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Jitra, #487\*

WOF (Km)	
Attacker	Defender
8.0	8.0

Rovno, #488\*

65.0	65.0
------	------

The Defense of Moscow, #489\*

700.0	700.0
-------	-------

Soviet Counteroffensive at Moscow, #490\*

1,060.0	1,060.0
---------	---------

The Pogoreloye Gorodishche Offensive, #491\*

36.0	36.0
------	------

Leningrad (Operation "Spark"), #492\*

13.0	13.0
------	------

# WIDTH OF FRONT CLARIFICATION DATA

The Oboyan-Kursk Axis, Phase I, #493\*

WOF (Km)	
Attacker	Defender
16.0	16.0

Operation "Citadel," Southern Sector, #494\*

30.0	30.0
------	------

The Oboyan-Kursk Axis, Phase II, #495\*

20.0	20.0
------	------

The Oboyan-Kursk Axis, Phase III, #496\*

25.0	25.0
------	------

Prokhorovka, #497\*

25.0	25.0
------	------

Kursk Counteroffensive (Southern Sector), #498\*

250.0	250.0
-------	-------

# WIDTH OF FRONT CLARIFICATION DATA

Belgorod, #499\*

WOF (Km)	
Attacker	Defender
16.0	16.0

Melitopol, #500\*

111.0	111.0
-------	-------

Korsun-Shevchenkovskiy, #501\*

180.0	180.0
-------	-------

Nikopol Bridgehead, #502\*

12.0	12.0
------	------

Sevastopol, #503\*

25.0	25.0
------	------

The Berezina River, Byelorussian Offensive, #504\*

10.0	10.0
------	------

# WIDTH OF FRONT CLARIFICATION DATA

The Lvov-Sandomierz Offensive, #505\*

WOF (Km)	
Attacker	Defender
440.0	440.0

Brody, Phase I, #506\*

5.5	5.5
-----	-----

Brody, Phase II, #507\*

7.0	7.0
-----	-----

Assault Crossing of the Vistula River, Phase I, #508\*

10.0	10.0
------	------

Vistula River Operation, Pulawy, Phase II, #509\*

12.0	12.0
------	------

Yassy-Kishinev, #510\*

590.0	590.0
-------	-------



# WIDTH OF FRONT CLARIFICATION DATA

Vistula-Oder, #511\*

WOF (Km)	
Attacker	Defender
480.0	480.0

East Prussia, #512\*

500.0	500.0
-------	-------

Ciechanow, Phase I, #513\*

2.0	2.0
-----	-----

Ciechanow, Phase II, #514\*

2.5	2.5
-----	-----

Seelow Heights, #515\*

2.0	2.0
-----	-----

Mutankiang, #516\*

12.0	12.0
------	------

# WIDTH OF FRONT CLARIFICATION DATA

Tarawa-Betio, #517\*

WOF (Km)	
Attacker	Defender
1.2	1.2

Iwo Jima, Into the Main Defenses, #518\*

4.7	4.7
-----	-----

Iwo Jima, Suribachi, #519\*

0.8	0.8
-----	-----

Iwo Jima, Final Phase, #520\*

1.8	1.8
-----	-----

Advance from the Beach, #521\*

1.6	1.6
-----	-----

Advance through the Outposts, #522\*

2.2	2.2
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Tomb Hill-Ouki, #523\*

WOF (Km)	
Attacker	Defender
2.6	2.6

Skyline Ridge-Rocky Crag, #524\*

3.4	3.4
-----	-----

Kochi Ridge-Onaga I, #525\*

3.0	3.0
-----	-----

Kochi Ridge-Onaga II, #526\*

3.0	3.0
-----	-----

Kochi Ridge-Onaga III, #527\*

3.0	3.0
-----	-----

Japanese Counterattack, 4-5 May, #528\*

1.8	1.8
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Kochi Ridge IV, #529\*

WOF (Km)	
Attacker	Defender
2.2	2.2

Shuri Envelopment, Phase I, #530\*

3.6	3.6
-----	-----

Japanese Counterattack, 24/25 May, #531\*

3.6	3.6
-----	-----

Shuri Envelopment, Phase II, #532\*

4.0	4.0
-----	-----

Shuri Envelopment, Phase III, #533\*

4.0	4.0
-----	-----

Hill 95-I, #534\*

2.5	2.5
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Hill 95-II, #535\*

WOF (Km)	
Attacker	Defender
2.0	2.0

Yaeju-Dake, #536\*

1.5	1.5
-----	-----

Hills 153 and 115, #537\*

3.0	3.0
-----	-----

Advance from the Beachhead, #538\*

5.0	5.0	2 Apr 1945
6.0	6.0	3 Apr 1945

Advance to the Shuri Line Outposts, #539\*

4.0	4.0
-----	-----

Kakazu and Tombstone Ridges, #540\*

3.8	3.8
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

## Nishibaru Ridge-Tanabaru Escarpment, #541\*

WOF (Km)		
Attacker	Defender	
2.3	2.3	19 Apr 1945
1.8	1.8	23 Apr 1945

## Maeda Escarpment, #542\*

2.1	2.1
-----	-----

## Attack on the Shuri Line's Eastern Flank I, #543\*

2.3	2.3
-----	-----

## Attack on the Shuri Line's Eastern Flank II, #544\*

2.5	2.5
-----	-----

## Attack on the Shuri Line's Eastern Flank III, #545\*

2.9	2.9
-----	-----

## Advance to the Yuza-Dake/Yaeju-Dake Escarpment, #546\*

3.0	3.0
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Initial Attack on the Yuza-Dake/Yaeju-Dake Escarpment, #547\*

WOF (Km)	
Attacker	Defender
3.0	3.0

Capture of the Yuza-Dake/Yaeju-Dake Escarpment, #548\*

3.0	3.0	12 Jun 1945
2.3	2.3	17 Jun 1945

Jenin, #549\*

2.0	2.0
-----	-----

Jerusalem, #550\*

11.0	11.0
------	------

Kabatiya, #551\*

1.0	4.5
-----	-----

Tilfit-Zababida, #552\*

1.0	4.5
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Nablus, #553\*

WOF (Km)	
Attacker	Defender
3.0	1.0

Rafah, #554\*

24.0	24.0
------	------

Bir Lahfan, #555\*

10.0	10.0
------	------

Abu Ageila-Um Katef, #556\*

8.0	8.0
-----	-----

El Arish, #557\*

7.0	7.0
-----	-----

Jebel Libni, #558\*

10.0	10.0
------	------



# WIDTH OF FRONT CLARIFICATION DATA

Gaza Strip, #559\*

WOF (Km)	
Attacker	Defender
9.0	9.0

Bir Hassna-Bir Thamada, #560\*

7.0	7.0
-----	-----

Mitla Pass, #561\*

1.0	1.0
-----	-----

Bir Hamma-Bir Gifgafa, #562\*

10.0	10.0
------	------

Nakhl, #563\*

12.0	12.0
------	------

Bir Gifgafa, #564\*

5.0	5.0
-----	-----

# WIDTH OF FRONT CLARIFICATION DATA

Tel Fahar-Banias, #565\*

WOF (Km)	
Attacker	Defender
6.5	6.5

Rawiyeh, #566\*

5.0	5.0
-----	-----

Zaoura-Kala, #567\*

1.0	1.0
-----	-----

Kerama, #568\*

5.0	5.0
-----	-----

Suez Canal Assault-North, #569\*

110.0	110.0
-------	-------

Suez Canal Assault-South, #570\*

38.0	38.0
------	------

# WIDTH OF FRONT CLARIFICATION DATA

Second Army Buildup, #571\*

WOF (Km)	
Attacker	Defender
110.0	110.0

Third Army Buildup, #572\*

54.0	38.0
------	------

Kantara-Firdan, #573\*

27.0	27.0
------	------

Egyptian Offensive-North, #574\*

50.0	50.0
------	------

Egyptian Offensive-South, #575\*

50.0	50.0
------	------

Deversoir (Chinese Farm I), #576\*

14.0	14.0
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# WIDTH OF FRONT CLARIFICATION DATA

Deversoir (Chinese Farm II), #577\*

WOF (Km)	
Attacker	Defender
11.0	11.0

Deversoir West, #578\*

11.0	11.0
------	------

Ismailia, #579\*

20.0	20.0
------	------

Jebel Geneifa, #580\*

18.0	18.0
------	------

Shallufa I, #581\*

32.0	32.0
------	------

Adabiya, #582\*

13.0	13.0
------	------

# WIDTH OF FRONT CLARIFICATION DATA

Shallufa II, #583\*

WOF (Km)	
Attacker	Defender
32.0	32.0

Suez, #584\*

6.0	6.0
-----	-----

Kuneitra, #585\*

15.0	15.0
------	------

Ahmadiyah, #586\*

7.5	7.5
-----	-----

Rafid, #587\*

14.0	14.0
27.0	27.0

afternoon, 6 Oct 1973  
morning, 7 Oct 1973

Yehudiah-El Al, #588\*

12.5	20.0
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# WIDTH OF FRONT CLARIFICATION DATA

Nafekh, #589\*

WOF (Km)	
Attacker	Defender
7.0	7.0

Tel Faris, #590\*

14.0	14.0
------	------

Hushniyah, #591\*

12.0	12.0
------	------

Mount Hermonit, #592\*

7.5	7.5
-----	-----

Mount Hermon I, #593\*

1.0	1.0
-----	-----

Tel Shams, #594\*

5.0	5.0	11 Oct 1973
17.0	17.0	13 Oct 1973

# WIDTH OF FRONT CLARIFICATION DATA

Tel Shaar, #595\*

WOF (Km)		
Attacker	Defender	
3.0	3.0	11 Oct 1973
16.0	16.0	12 Oct 1973

Tel el Hara, #596\*

12.0	20.0
------	------

Kfar Shams-Tel Antar, #597\*

20.0	20.0
------	------

Naba, #598\*

9.0	9.0
-----	-----

Arab Counteroffensive, #599\*

25.0	25.0
------	------

Mount Hermon II, #600\*

1.0	1.0
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# WIDTH OF FRONT CLARIFICATION DATA

Mount Hermon III, #601\*

WOF (Km)	
Attacker	Defender
2.0	2.0

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## Task 5 Footnotes

Nieuport, #1: Oman, map, p. 589

White Mountain, #2: Spruener, map 44.

Wimpfen, #3: Ibid.

Breitenfeld I, #6: Lawford, map, p. 79.

The Lech, #7: Dupuy, Gustavus Adolphus, map, p. 118.

Alte Veste, #8: Ibid., map, p. 131.

Luetzen, #9: Spruener, map 44.

Noerdlingen I, #10: Ibid.

Wittstock, #11: Tingsten, map 1.

Breitenfeld II, #12: Ibid., map 2.

Rocroi, #13: Lawford, map, p. 81.

Tuttlingen, #14: Spruener, map 44.

Freiburg, #15: Dodge, Gustavus Adolphus, map, p. 459, compared to modern maps of the same area.

Jankau, #16: Tingsten, map 3.

Mergentheim, #17: Dodge, Gustavus Adolphus, map, p. 473, compared to modern maps of the same area.

Allerheim (Noerdlingen II), #18: Dodge, Gustavus Adolphus, map, p. 479, compared to modern maps of the same area.

Lens, #19: Aumale, V; map facing p. 704.

Edgehill, #20: Smurthwaite, map, p. 141.

Marston Moor, #21: Kinross, map, p. 177.

Tippermuir, #22: The discussion in Williams, p. 154, indicates that Montrose's battle line was lengthened to match his opponent's.

Kilsyth, #23: Seymour, II: map, p. 137.

Newbury II, #24: Smurthwaite, map, p. 165

Naseby, #25: Czechoslovak Republic, Map F.b, p. 269.

Preston, #26: Woolrych, map, p. 166, and Irwin, map facing p. 86. These maps show the positions of the opposing forces at the outset of the first clash on Ribbleson Moor, near Preston. The fronts in the subsequent fights at the Ribble Bridge and Winwick are very tentatively estimated to have been approximately the same.

Dunbar, #27: Smurthwaite, map, p. 173.

Worcester, #28: Ibid., map, p. 175.

St. Antoine, #29: Aumale, VI: description, p. 186.

The Dunes, #30: Fortescue, I: map facing p. 272.

The Raab, #31: Peball, sketch IV.

Vienna, #32: Chandler, Battlefields, II: map, p. 3.

Sinsheim, #34: Kausler, map, p. 52.

Senef, #35: Aumale, VII: map facing p. 485.

Enzheim, #36: Legrand-Girarde, map facing p. 100.

Fehrbellin, #38: Kausler, map, p. 93.

Sedgemoor, #39: Seymour, II: map, p. 169.

Killiecrankie, #40: Smurthwaite, map, p. 192.

Walcourt, #41: Chandler, Marlborough, Appendix A.

The Boyne, #43: Hayes-McCoy, map, p. 217.

Aughrim, #44: Ibid., map, p. 241.

Steenkerke, #45: Fortescue, I: map facing p. 366

Neerwinden (Landen), #46: Ibid., map facing p. 376.

Zenta, #48: Czechoslovak Republic, map A.b, p. 272.

Poltava, #49: Ibid., map A.b, p. 271.

Blenheim, #50: Chandler, Marlborough, map, p. 143.

Ramillies, #51: Ibid., map, p. 174.

Oudenarde, #52: Ibid., map, p. 217.

Malplaquet, #53: Ibid., map, p. 255.

Mollwitz, #55: Duffy, map, p. 214.

Chotusitz, #56: Ibid., map, p. 215.

Dettingen, #57: Fortescue, II: map facing p. 112.

Fontenoy, #58: Ibid.

Hohenfriedberg, #59: Duffy, map, p. 216.

Sohr, #60: Ibid., map, p. 217.

Kesselsdorf, #61: Ibid., map, p. 218.

Prestonpans, #62: Smurthwaite, map, p. 202.

Culloden, #63: Ibid., map, p. 207.

Lobositz, #64: Duffy, map, p. 219.

Prague, #65: Duffy, map, p. 220.

Plassey, #66: Fortescue, II: map facing p. 474.

Kolin, #67: Duffy, map, p. 221.

Hastenbeck, #68: Savory, map, p. 27, and discussion, pp. 27-38.

Rosbach, #69: Duffy, map, p. 222.

Leuthen, #70: Ibid., p. 223.

Crefeld, #71: Savory, map, p. 27, and discussion, pp. 76-83.

Zorndorf, #72: Duffy, map, p. 225.

Hochkirch, #73: Ibid., map, p. 226.

Bergen, #74: Savory, map, p. 127, and discussion, pp. 126-134.

Minden, #75: Knowles, map preceding p. 90.

Kunersdorf, #76: Duffy, map, p. 227.

Plains of Abraham (Quebec), #77: Fortescue, II: map 1.

Warburg, #79: Savory, map, p. 235.

Liegnitz, #80: Duffy, map, p. 228.

Torgau, #81: Ibid., map, p. 229.

Bunker Hill, #82: Esposito, West Point Atlas, I: map 4c.

Quebec, #83: Flood, map, p. 4. The width of front is for the attack by Arnold's and Montgomery's forces and the forces immediately opposed to them.

White Plains, #84: Dupuy and Dupuy, Compact History of the Revolutionary War, map, p. 151.

Trenton, #85: Boatner, American Revolution, map, p. 1, 113.

Princeton, #86: Ibid., map, p. 892.

Freeman's Farm, #87: Esposito, West Point Atlas, I: map 6b.

Germantown, #88: Ibid., map 7c.

Bemis Heights, #89: Ibid., map 6c.

Monmouth Court House, #90: Dupuy and Dupuy, Outline History, map, p. 124.

Camden, #91: Esposito, West Point Atlas, I: map 8b.

Cowpens, #92: Ibid., map 8c.

Guilford Court House, #93: Ibid., map 8d.

Hobkirk's Hill, #94: Ibid., map 8e

Eutaw Springs, #95: Ibid., map 8f.

Valmy, #96: Dodge, Napoleon, I: map, p. 112.

Jemappes, #97: Ibid., map, p. 76.

Neerwinden, #98: Ibid., map, p. 91.

Hondschoote, #99: Robinson, et al., map, p. 9.

Wattignies, #100: Dupuis, map 4, and discussion, pp. 153-199.

Fleurus, #101: Dodge, Napoleon, I: map, p. 112.

Lodi, #102: Ibid., map, p. 229.

Castiglione, #103: Chandler, Napoleon, map, p. 195.

Neresheim, #104: Dodge, Napoleon, I: map, p. 319.

Wuerzburg, #105: Ibid., map, p. 327.

Arcola, #106: Chandler, Napoleon, statement, p. 1,118.

Rivoli, #107: Ibid., statement, p. 1,121.

The Pyramids, #108: Esposito and Elting, map 32.

Stockach I, #109: Dodge, Napoleon, I: map, p. 579.

Mount Tabor, #110: Chandler, Napoleon, statement, p. 1,120.

Zurich I, #111: Kausler, plate 78.

Novi, #112: Dodge, Napoleon, I: map, p. 605.

Zurich III, #113: Ibid., map, p. 615.

Moeskirch, #114: Ibid., II: map, p. 86.

Marengo, #115: Ibid., map, p. 69.

Hohenlinden, #116: Ibid., map, p. 95.

Austerlitz, #117: Chandler, Napoleon, statement, p. 1,119.  
Jena, #118: Ibid., map, p. 487.  
Auerstadt, #119: Esposito and Elting, maps 64-65.  
Eylau, #120: Chandler, Napoleon, statement, p. 1,119.  
Friedland, #121: Esposito and Elting, map 79.  
Vimeiro, #122: Chandler, Dictionary, map, p. 466.  
Corunna, #123: Napier, I: map, p.327.  
Eckmuehl, #124: Esposito and Elting, map 99.  
Aspern-Essling, #125: Chandler, Napoleon, map, p. 701.  
The Raab, #126: Kausler, map, p. 193.  
Wagram, #127: Chandler, Dictionary, map, pp. 474-475.  
Talavera, #128: Ibid., map, p. 434.  
Bussaco, #129: Ibid., map, p. 73.  
Fuentes de Onoro, #130: Ibid., map, p. 164.  
Albuera, #131: Ibid., map, p. 6.  
Salamanca, #132: Ibid., map, p. 397.  
Vittoria, #133: Ibid., map, p. 469.  
Borodino, #134: Esposito and Elting, map 116.  
Luetzen, #135: Ibid., map 129.  
Bautzen, #136: Chandler, Napoleon, statement, p. 1,119.  
Dresden, #137: Ibid.  
Leipzig, #138: Esposito and Elting, maps 141, 143.  
Hanau, #139: Chandler, Dictionary, map, p. 192.  
La Rothiere, #140: Chandler, Napoleon, maps, pp. 961, 963.  
Laon, #141: Ibid., statement, p. 1,120.  
Arcis-sur-Aube, #142: Ibid., statement, p. 1,118.  
Ligny, #143: Ibid., map, p. 1,036.  
Quatre Bras, #144: Ibid., map, p. 1,054.  
Waterloo, #145: Ibid., maps, pp. 1,070, 1,082.

The Thames, #146: Stanley, description, p. 210.

Chippewa, #147: Ibid., map, p. 314

Lundy's Lane, #148: Ibid., map, p. 320.

New Orleans, #149: Steele, II: map, p. 47.

Boyaca, #150: Lecuna, II: map facing p. 348.

Carabobo, #151: Ibid., III: map facing p. 24.

Bombona, #152: Ibid., map facing p. 94.

Pichincha, #153: Ibid., map facing p. 148.

Junin, #154: Ibid., map facing p. 414.

Ayacucho, #155: Ibid. map facing p. 460.

San Jacinto, #156: James, map facing p. 211.

Palo Alto, #157: Dillon, map, p. 24.

Resaca de la Palma, #158: Steele, II: map, p. 52.

Buena Vista, #159: Dufour, map, p. 175.

Cerro Gordo, #160: Steele, II: map, p. 58.

Contreras, #161: Ibid., map, p. 61.

Churubusco, #162: Dufour, map, p. 252.

Molino del Rey, #163: Ibid., map, p. 261.

Chapultepec, #164: Esposito, West Point Atlas, I: map 16e

The Alma, #165: Gibbs, map, p. 111.

Inkerman, #166: Kinglake, VI: plate 3.

Magenta, #167: Forbes, et al., I: map, p. 170, and Fruston, unnumbered map.

Solferino, #168: Robinson, et al., map, p. 145.

Sadowa (Koeniggratz), #169: Dupuy, Genius, map, p. 87.

First Bull Run (First Manassas), #171: Johnson and Buel, Battles and Leaders, I: map, p. 180. (Cited hereafter as B&L.)

Wilson's Creek, #172: Ibid., map, p. 290.

Belmont, #173: Davis, et al., plate IV, maps 2 and 3.

Mill Springs, #174: B&L, I: map, p. 388.

Fort Donelson, #175: Ibid., map, p. 402.

Pea Ridge, #176: Ibid., map, p. 322.

Kernstown, #177: Ibid., II: map, p. 307.

Shiloh, #178: Esposito, Atlas to Accompany Steele, maps 34, 37-38.

Front Royal, #179: Davis, et al., plate V, map 5. This is the only map found in research for this study for this engagement. There is no scale on the map. The towns of Front Royal and Strasburg are shown, and the distance between them, approximately ten miles, is used as a rough unit of measurement.

First Winchester, #180: Davis, et al., plate LXXXV, map 2.

Cross Keys, #181: Esposito, West Point Atlas, I: map 53.

Port Republic, #182: Ibid.

Seven Pines (Fair Oaks), #183: Ibid., map 43b.

Mechanicsville, #184: Ibid., map 45b.

Gaines's Mill, #185: Steele, II: map, p. 102.

Glendale-Frayser's Farm, #186: Ibid., map, p. 105.

Malvern Hill, #187: Ibid., map, p. 106.

Cedar Mountain, #188: B&L, II: map, p. 459.

Second Bull Run (Second Manassas), #189: Esposito, West Point Atlas, I: maps 62 and 63.

South Mountain, #190: Ibid., map 66.

Antietam (Sharpsburg), #191: Ibid., maps 68b and 69b.

Corinth, #192: Steele, II; map, p. 215.

Perryville, #193: Ibid., maps, pp. 157, 159.

Fredericksburg, #194: Esposito, West Point Atlas, I: map 72.

Murfreesboro (Stones River), #195: Ibid., maps 78 and 83.

Chancellorsville, #196: Ibid., maps 85 and 91.

Champion's Hill, #197: Livermore, Story, III, Book II, map, p. 293.

Brandy Station, #198: Downey, endpaper.

Gettysburg, #199: Esposito, West Point Atlas, I: maps 96b, 97b, 98b.

Chickamauga, #200: Steele, II: map, p. 233.

Chattanooga, #201: Esposito, West Point Atlas, I: maps 116b and 116c.

The Wilderness, #202: Ibid., maps 122b and 124a.

Spotsylvania, #203: Ibid., maps 127, 130, 132.

New Market, #204: B&L, IV: map, p. 482.

Cold Harbor, #205: Esposito, West Point Atlas, I: map 136a.

Kenesaw Mountain, #206: Ibid., map 146b.

Peachtree Creek, #207: Ibid., map 147a.

Atlanta, #208: Ibid., map 147b.

Petersburg, #209: Ibid., maps 138a and 138c.

Globe Tavern, #210: Ibid., map 140.

Opequon Creek (Third Winchester), #211: B&L, IV: map, p. 504.

Cedar Creek, #212: Davis, et al., plate LXIX, map 3.

Franklin, #213: Esposito, West Point Atlas, I: map 152b.

Nashville, #214: Ibid., maps 153-154.

Bentonville, #215: B&L, IV: map, p. 702.

Dinwiddie Court House & White Oak Road, #216: Esposito, West Point Atlas, I: map 142.

Five Forks, #217: B&L, IV: map, p. 712.

Selma, #218: Boatner, Civil War, discussion, p. 936, and Davis, et al., plate LXX, map 4.

Sayler's Creek, #219: Esposito, Atlas to Accompany Steele, map 144.

Weissenburg, #220: de Woyde, unnumbered map in atlas.

Froeschwiller (Woerth), #221: Ibid.

Spichern, #222: Ibid.

Mars la Tour, #223: Ibid.

Gravelotte-St. Privat, #224: Ibid.

Sedan, #225: Ibid.

Coulmiers, #226: Maurice, map, p. 393.



Orleans, #227: Rousset, II, map and discussion, pp. 44-45, 84-104.

Le Mans, #228: Maurice, map, p. 449.

Belfort, #229: Ibid., map and discussion, pp. 513-515. Maurice's text describes French and German positions. The German front ran from Frahier in the north to Montbeliard in the south. The French front was opposite the German left, about one-half the length of the German front and running from Hericourt to Montbeliard.

Isandhlwana, #230: Morris, map, p. 358.

Ulundi, #231: Laband and Thompson, map, p. 94.

Majuba Hill, #232: Bond, map, p. 226. The attacker's front includes Boer covering fire.

Tel el-Kebir, #233: Traill, discussion, p. 250, and Featherstone, map, p. 151 and discussion, pp. 150-152.

Omdurman, #234: Bond, map, p. 294.

Adowa, #235: Berkeley, sketch map and map opposite p. 326.

Modder River, #236: Pakenham, map, p. 200.

Magersfontein, #237: Ibid.

Colenso, #238: Ibid., map, p. 235.

Spion Kop, #239: Ibid., map, p. 302.

Paardeberg, #240: Selby, map, p. 177.

San Juan and El Caney, #241: Esposito, West Point Atlas, I: map 156.

The Yalu, #242: Prussia, The Yalu, sketch 5.

Telissu, #243: Prussia, Wa-Fan-Gou, sketch 3.

Liaoyang, #244: Prussia, Liao-Yan, sketch 1.

The Sha-Ho, #245: Prussia, Scha-Ho, sketch 1.

Sandepu, #246: Prussia, Yin-Kou and San-De-Pu, map 4.

Mukden, #247: Westwood, discussion, p. 92.

Kumanovo, #248: Barby, map, p. 55.

Lule' Burgas, #249: Ford, map, p. 58, and Howell, map, p. 110.

Prelip, #250: Barby, map, p. 112.

Monastir, #251: Ibid., map, p. 120.

Adrianople, #252: Howell, map, p. 93.

Warsaw, #253: Pilsudski, II: maps 6 and 7.

The Nieman, #254: Ibid.

Guadalajara-Brihuega, #255: Coverdale, map, p. 226.

Changkufeng/Shachaofeng, #256: Coox, map, p. 129.

Hill 52/Shachaofeng, #257: Ibid.

Changkufeng/Hill 52, #258: Ibid.

Nomonhan: Opening Engagement, #259: Drea, map, p. 5.

Nomonhan: Soviet Counteroffensive, #260: US, Headquarters, USAFFE, map, p. 397.

Suomussalmi, #261: Chew, maps, pp. 98, 105, 115.

Alsace-Lorraine I, #262: McEntee, Military History, map, p. 54.

Alsace-Lorraine II, #263: Ibid.

The Ardennes, #264: Ibid., map, p. 57.

The Sambre, #265: Ibid., map, p. 59.

Mons, #266: Edmonds, 1914, map, p. 71.

Le Cateau, #267: Ibid., sketch 7.

Guise, #268: McEntee, Military History, map, p. 65.

The Heights of Nancy, #269: Ibid., map, p. 73.

The Ourcq I, #270: Ibid., map, p. 75.

The Ourcq II, #271: Esposito, West Point Atlas, II: map 12.

The Petit Morin, #272: Ibid.

The Two Morins, #273: Ibid.

The Marshes of St. Gond, #274: Ibid.

Vitry le Francois, #275: McEntee, Military History, map, p. 76.

The Gap of Revigny, #276: Esposito, West Point Atlas, II: map 11.

The Aisne, #277: Ibid., map 13.

Stalluponen, #278: Germany, Der Weltkrieg, II: map, p. 77.

Gumbinnen, #279: Ibid., map, p. 80.

Tannenberg, #280: McEntee, Military History, map, p. 105.

Masurian Lakes, #281: Ibid., map, p. 109.

Krasnik, #282: Ibid., map, p. 114.

Komarov, #283: La grande guerre, sketch 22.

The Gnila Lipa, #284: Ibid.

Rava Russka, #285: Ibid., sketch 30.

Lodz, #286: Stone, map, p. 102.

The Jadar, #287: McEntee, Military History, map, p. 134.

The Kolubra, #288: Ibid., map, p. 139.

Eastern Champagne, #289: Ibid., map, p. 175.

Neuve Chapelle, #290: Edmonds and Wynne, sketch 7.

Ypres II, #291: McEntee, Military History, map, p. 178.

Festubert, #292: Buchan, II: map, p. 78.

Loos, #293: McEntee, Military History, map, p. 183.

The Winter Battle (Masuria), #294: Stone, map, p. 115.

Gorlice-Tarnow (Opening Phase Only), #295: McEntee, Military History, map, p. 193.

First Isonzo, #296: McEntee, Italy's Part, map, p. 31.

Second Isonzo, #297: Ibid., map, p. 34.

Third Isonzo, #298: Ibid.

Fourth Isonzo, #299: Ibid.

First Dardanelles Landing, #300: Aspinall-Oglander, I: maps, pp. 207, 261.

Suvla Bay, #301: Ibid., II: map, p. 83.

Kut-el-Amara, #302: McEntee, Military History, map, p. 255.

Ctesiphon, #303: Ibid., map, p. 258.

First Somme, #304: Esposito, West Point Atlas, II: map 34.

Somme, Fourth Army Attack, #305: Ibid.

Somme, Ovillers, #306: Churchill, The World Crisis, III, discussion, p. 176.

Somme, Bazentin Ridge, #307: Miles, sketch 10.

Somme, Flers-Courcelette, #308: Buchan, III: discussion, p. 195.  
 Buchan reports that the British broke through on a front of over six miles.

Caucasus Winter Offensive, #309: McEntee, Military History, map, p. 329.

Lake Narotch, #310: Ibid.

1916 Brusilov Offensive, #311: Stone, map, p. 248.

Fifth Isonzo, #312: McEntee, Italy's Part, map, p. 34.

Asiago, #313: Ibid., map, p. 43.

Trentino Counteroffensive, #314: Ibid.

Sixth Isonzo (Gorizia), #315: Ibid., map, p. 48.

Arras, #316: McEntee, Military History, map, p. 354.

Aisne II, #317: Ibid., map, p. 358.

Messines, #318: Wolff, map, p. 96.

Ypres III, #319: McEntee, Military History, map, p. 360.

Cambrai I, #320: Ibid., map, p. 364.

Cambrai II, #321: Ibid.

Tenth Isonzo, #322: McEntee, Italy's Part, map, p. 56.

Eleventh Isonzo, #323: Ibid., map, p. 59.

Caporetto (Twelfth Isonzo), #324: McEntee, Italy's Part, map, p. 430.

Crossing of the Tigris, #325: United States Military Academy, Department of Civil and Military Engineering, map C.

Gaza I, #326: Esposito, West Point Atlas, II: map 54.

Gaza II, #327: Ibid., map 55.

Gaza III, #328: Ibid., map 56.

Junction Station, #329: Ibid.

Second Somme, Phase I (Somme-Peronne), #330: McEntee, Military History, map, p. 472.

Second Somme, Phase II (Somme-Montdidier), #331: Ibid., map, p. 477.

Lys, #332: Ibid., map, p. 482.

Yvonne and Odette Positions, #333: Spaulding and Wright, map, p. 23.

Chemin des Dames, #334: McEntee, Military History, map, p. 484.

Cantigny, #335: US American Battle Monuments Commission, 1st Division, unnumbered map.

Belleau Wood, #336: Asprey, maps, pp. 145, 163.

Hill 142, #337: Ibid., map, p. 163.

West Wood I, #338: Ibid.

Bouresches I, #339: Ibid.

Hill 192, #340: Ibid.

West Wood II, #341: Ibid., map, p. 233.

North Wood I, The Hunting Lodge, #342: Ibid., map, p. 264.

Bouresches II, #343: Ibid.

North Wood II, #344: Ibid., maps, pp. 264, 300.

North Wood III, #345: Ibid.

North Wood IV (Final Assault), #346: Ibid., map, p. 299.

Vaux, #347: Ibid.

La Roche Wood East, #348: Ibid.

La Roche Wood West, #349: Ibid.

Noyon-Montdidier, #350: Dupuy and Crick, map, p. 81.

Champagne-Marne, #351: Ibid.

Aisne-Marne I, #352: McEntee, Military History, map, p. 501.

Missy aux Bois Ravine, #353: The Regimental Adjutant, map facing p. 36.

Breuil, #354: Ibid.

St. Amand Farm, #355: US American Battle Monuments Commission, 1st Division, unnumbered map.

Beaurepaire Farm, #356: US American Battle Monuments Commission, Second Division, unnumbered map.

Cravancon Ferme-Chaudun, #357: The Regimental Adjutant, map facing p. 36.

Chaudun, #358: Ibid.

Aisne-Marne II, #359: McEntee, Military History, map, p. 506.

Berzy le Sec, #360: American Battle Monuments Commission, 1st Division, unnumbered map.

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